

**A Report the ExxonMobile Facility at Baytown, Texas
Formerly Owned by the Humble Oil and Refining Company
and the Facility at Baton Rouge, Louisiana Formerly Owned
by the Standard Oil of Louisiana, From the World War II Era
through the Korean War**

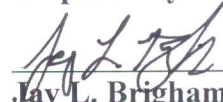
ExxonMobil Corporation, v. The United States of America

(S.D. Tex. C. A. Nos. H-10-2386 and H-11-1844)

and

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I. Introduction: Background and Opinions

The Environment and Natural Resources Division of the United States Department of Justice contacted me in April 2011 regarding this case. Subsequently, Morgan, Angel and Associates, LLC, and I, as the expert witness, signed a contract with the Department of Justice to review historical documents and write an expert witness report regarding the Humble Oil and Refining Company in Baytown, TX, and the Standard Oil Company of Louisiana in Baton Rouge, LA. The Civil Division of the Department of Justice had previously contacted me in May 2009 concerning the contract cases that ExxonMobil had filed in the U.S. Court of Federal Claims. Morgan, Angel and Associates, LLC then signed an expert witness contract with the Civil Division.

I have a doctoral degree in United States history with an emphasis in twentieth-century American history. Morgan, Angel and Associates, LLC is compensated \$130.00 per hour for my work. I have given expert testimony in United States District Court (District of Kansas, District of New Jersey, Central District of California, District of South Carolina, Western District of Washington, Southern District of California) and the United States Court of Federal Claims. I have attached my resume as Exhibit 1 and list of cases in which I was either deposed or testified is attached as Exhibit 2.

To complete the work required for this report I, or people under my direct supervision, reviewed approximately 50,000 documents that the Department of Justice provided. I, or people I supervised, also conducted independent archival research at the National Archives and Records Administration facilities in College Park, MD, and in Ft. Worth, TX. I, or people I supervised, also reviewed boxes stored at the Federal Records Center in Ellenwood, GA.

Based upon my review of the pertinent materials and my background in twentieth century United States history, I offer the following expert opinions. I reserve the right to offer additional opinions and to alter these opinions if new documentary material is located.

1. Beginning in the 1930s, several petroleum companies including the Standard Oil Company of New Jersey and Humble Oil and Refining Company started research and development work into methods for the production of high-octane aviation gasoline. In 1935, the Standard Oil Company of New Jersey's subsidiary, the Standard Oil Company of Louisiana, made its first sales of high-octane aviation gasoline. By the end of the decade, the Humble Oil and Refining Company had made its first sales of high-octane aviation gasoline. In the 1930s, the Standard Oil Company of New Jersey also undertook research into the production of synthetic rubber, which became critically important when the United States' traditional sources of natural rubber were cutoff at the beginning of World War II.

2. The American economy during World War II was characterized by cooperation between private enterprise that provided much needed expertise and knowledge, and the Federal government that provided the financial capital for plant expansion and a market for wartime production. Specifically in the petroleum industry, the government relied on the expertise in the production of high-octane aviation gasoline that the petroleum producers had developed during the 1930s. The government funded the costs of production and shouldered the financial risk of facility expansion for high-octane aviation production. The government also offered multi-year supply contracts during World War II. Humble Oil and Refining Company and Standard Oil

Company of Louisiana each voluntarily participated in various wartime programs meant to expand production capacity including programs involving Certificates of Necessity, Emergency Plant Facilities Contracts (Baytown), Defense Plant Corporation (Plancors), and the Aviation Gasoline Reimbursement Plan.

3. Before, during, and after both World War II and the Korean War, the Humble Oil and Refining Company refinery at Baytown and the Standard Oil Company of Louisiana refinery at Baton Rouge were privately managed and largely privately owned plants that manufactured numerous petroleum-based products. In my review of the historical documentation, I have found no evidence to suggest that representatives of the military or federal civilian agencies engaged in day-to-day production or management decisions at either the Baytown or Baton Rouge refineries.

4. During World War II, the Defense Plant Corporation financed improvements and owned property at the Baytown and Baton Rouge plants, both of which were involved in the production of synthetic rubber. The Defense Plant Corporation and the Rubber Reserve Company relied on the expertise in synthetic rubber production that the Humble Oil and Refining Company, the Standard Oil Company of New Jersey and its affiliates, and the Standard Oil Company of Louisiana had developed in the 1930s and early 1940s for the design and construction of these Defense Plant Corporation facilities. The Defense Plant Corporation relied on the Humble Oil and Refining Company and the Standard Oil Company of Louisiana for the day-to-day management of the production of synthetic rubber.

5. Beginning in the summer of 1940, the Army financed the construction of the Baytown Ordnance Works, but relied on the Humble Oil and Refining Company for the construction and the day-to-day management of the plant. The Standard Oil Company of New Jersey and its affiliates had been among the leaders in the development of methods of production of petroleum-based toluene before World War II. The Army relied on the Humble Oil and Refining Company's expertise for the production of toluene at the Baytown Ordnance Works.

6. After World War II, the Humble Oil and Refining Company refinery at Baytown and the Standard Oil Company of Louisiana refinery at Baton Rouge focused on the production of petroleum products for civilian use. During the Korean War, Standard Oil Company of Louisiana and Humble Oil and Refining Company again voluntarily manufactured high-octane gasoline. However, military aviation gasoline sales were less important to the refineries during this period and non-military sales of high-octane gasoline continued after the outbreak of the Korean War.

7. During the Korean War, the government again helped finance expansion of the petroleum industry through accelerated tax depreciation of private investment. The Humble Oil and Refining Company and the Standard Oil Company of Louisiana both participated. However, during the Korean War, the role of the government was less significant than it had been during World War II. During the Korean War, the government did not have a purchase contract for all manufactured 100-octane aviation gasoline, as it did during World War II between January 1942 and August 1945. During the Korean War, sales of commercial aviation gasoline also continued.

8. From the end of World War II into the mid-1950s, the government continued to rely on the expertise of the individuals of Humble Oil and Refining Company refinery at Baytown and the Standard Oil Company of Louisiana refinery at Baton Rouge to operate the synthetic rubber plants for the production of synthetic rubber for the nation's strategic stockpile.

II. Antecedents of the World War II Wartime Economy: World War I, the Great Depression, Isolationism, and American Foreign Policy in the 1930s and Early 1940s

A. Introduction

The development of the American economy in World War II, which by 1943 was out producing the Axis powers, did not occur overnight or without a considerable number of missteps. Although by 1937 President Roosevelt recognized the danger that a deteriorating international situation in East Asia and Europe presented to the United States, he encountered strong opposition as he gradually attempted to move the United States into a position of providing "aid short of war" to the French and British. Resistance among some Americans to the President remained strong through much of 1941. When the House of Representatives, for example, renewed the military draft in August of 1941, it passed by 1 vote. It was not until the Japanese attack on Pearl Harbor that a majority of Americans believed that the United States should become a direct combatant. Part of the opposition that Roosevelt and other internationalists encountered was rooted in the long-standing belief that the United States should not become involved in European and Asian diplomatic and military issues. Another element of the opposition, however, resulted from the country's recent experiences during World War I.¹

B. World War I, the Great Depression, and Isolationism

Although the United States remained neutral during the first 3.5 years of World War I, American businessmen and bankers actively dealt with the British and French. The U.S.'s trade involvement contributed to German submarine attacks against the American Merchant Marine. The sinking of the Lusitania in May 1915, the Zimmerman Telegram in January 1917, and the German's resumption of unrestricted submarine warfare angered Americans and ultimately contributed to President Wilson's request to Congress to declare war on Germany in April 1917.² After the armistice ended the war in November 1918, the United States quickly demobilized its military. The Senate rejected the Treaty of Versailles and American participation in the League

¹ In the years between World War I and World War II, World War I was often called the "Great War" or the "War to End Wars." In this report, I will refer to it as World War I.

² The Lusitania was a British ocean liner sunk by German submarines in 1915 while en-route from New York City to Great Britain. The ship was carrying American passengers, as well as small quantities of ammunition. The German government issued a warning that all ships were subject to attack if the Germans believed they were carrying ammunition. The Zimmerman Telegram was a telegram intercepted by the British in January 1917. The telegram, allegedly sent from a German diplomat to the Mexican government, promised the return of the land ceded in the Mexican-American War if Mexico took up arms against the United States.

of Nations. Presidential candidate Warren G. Harding tapped into the country's discontent when he adopted the campaign slogan "return to normalcy."

During the 1920s and 1930s, many Americans began to believe that the United States had been tricked into participating in World War I. The so-called "merchants of death" theory developed with the central tenet being that American business, arms makers and bankers in particular, had manipulated public opinion during World War I to a pro-British and pro-French perspective. Isolationists targeted American bankers because they believed that in making loans to the British and French, the bankers became invested in a pro-British and pro-French outcome. Others thought that British propaganda had played a part in convincing Congress to declare war. The high inflation of the World War I period followed by the decline in agricultural prices in the 1920s further contributed to the negative view of the country's participation in World War I. The economic hardship caused by the Great Depression hardened the attitude that the United States should remain neutral from world events and concentrate on domestic issues.

Although domestic politics dominated in the 1930s, there were some notable foreign policy issues. In the spring of 1934, Congress passed the Johnson Act, forbidding the extension of credit from American bankers to any country in default on World War I loans. Several months later the Senate's Special Committee on Investigation of the Munitions Industry, chaired by Gerald P. Nye of North Dakota, began its work. The Nye Committee held ninety-three hearings over eighteen months, involving 200 witnesses. Representatives of some of the country's largest business concerns testified before the committee, including individuals from the DuPont Company, the Electric Boat Company, Pratt and Whitney, and J. P. Morgan. During the hearings, senators often questioned witnesses about wartime profits and often charged that profiteering contributed to the high inflation of the World War I years. Although the Nye Committee found little evidence in support of the "merchants of death" theory, the idea that the United States had been duped into entering World War I remained strong in American society and politics as did concern with war profiteering.³ In fact, corporate profits increased more than 70% between 1913 and 1917, the year the United States entered the war.⁴ The concern with wartime profiteering led Congress in 1934 to limit profits to 10% on naval ships and aircraft in the Vinson-Trammell Act that authorized ship construction. Congress limited profits on ship construction for the Merchant Marine in 1936.⁵

While the Nye Committee was conducting its work, Congress passed the Neutrality Act of 1935. Congress passed three more such acts in 1936, 1937, and 1939. Each act became more comprehensive, and most considered the 1937 Act a permanent piece of legislation. Essentially, the acts made no distinction between an aggressor nation and a nation under attack. All

³ The standard body of work on the Nye Committee is by W. S. Cole, Senator Gerald P. Nye and American Foreign Relations (Minneapolis: University of Minnesota Press, 1962). For a complete review of Roosevelt and isolationism see W. S. Cole, Roosevelt and the Isolationists, 1932-1945 (Lincoln: University of Nebraska Press, 1983).

⁴ P. C. Koistinen, Arsenal of World War II, The Political Economy of American Warfare, 1940-1945 (Manhattan, KS: University Press of Kansas, 2004), p. 432.

⁵ Koistinen, Arsenal of World War II, p. 432.

countries at war were considered belligerent nations. The basic terms of the neutrality acts were an arms embargo, a ban on loans to belligerent nations, a ban on American citizens traveling on ships of belligerent nations except at their own risk, and a stipulation that trade of non-embargoed goods had to be on a cash and carry basis. The 1939 Neutrality Law, however, removed the arms embargo.

C. President Roosevelt and “Aid Short of War”⁶

Although President Roosevelt signed the neutrality laws, he supported the British and French. In October 1937, he delivered his “Quarantine Speech” in response to the Sino-Japanese War. The following fall, after Germany’s annexation of Austria and the Munich Agreement, in which Czechoslovakia ceded the Sudetenland to Germany, Roosevelt asked for an additional 10,000 planes for the Army Air Corps and the production capacity to build another 10,000 per year.⁷

The international situation quickly deteriorated after the Munich Agreement. In August 1939, the Soviet Union and Germany signed a non-aggression pact. A week later, Germany invaded Poland and the British and French declared war on Germany. The so-called “Phony War” followed until May 1940, when Hitler turned his forces west and invaded the Low Countries and France. France fell in June 1940. In August of that same year, the Battle of Britain began and Germany tried to force a British surrender through a strategic bombing campaign. When that failed, Hitler turned back east in June 1941 and invaded the Soviet Union.

As these events passed, Roosevelt pursued a policy of “aid short of war.” A somewhat reluctant American public followed along. After the fall of France, most Americans sympathized with the British and French, but still opposed direct American involvement. Roosevelt adroitly worked to aid Great Britain. German submarine attacks were exacting a high toll on the British Navy as it tried to protect merchant marine traffic to Great Britain. So, in September 1940, the United States agreed to give the British 50 aging destroyers in exchange for a number of British bases in the western hemisphere. Following an urgent plea from British Prime Minister Churchill in December 1940, Roosevelt pushed for and Congress passed the Lend-Lease Law in March 1941. The law lifted the ban on loans to belligerent nations enacted by the Johnson Act and the Neutrality Acts of the 1930s. Yet, it was not until the attack on Pearl Harbor that most Americans would approve of direct involvement in the war. From June 1940 until December 1941, the majority of Americans continue to favor “aid short of war” and the similar concept of “the arsenal of democracy.”

⁶ Roosevelt used the idea of “aid short of war” in his attempt to circumvent isolationist opposition to direct American involvement in World War II. To many, the idea had the appeal of providing aid to those nations under attack without directly involving American troops. In December 1940, Roosevelt used the phrase “Arsenal of Democracy” to convince the American public of the need to aid Great Britain in its war with Germany through the passage of Lend-Lease legislation. See, Cole, Roosevelt and the Isolationists, pp. 297-309, and pp. 409-12.

⁷ M. S. Sherry, The Rise of American Air Power, The Creation of Armageddon (New Haven: Yale University Press, 1987), pp. 79-81.

However, long before Lend-Lease became law, and after the passage of that particular law, President Roosevelt worked to transform the nation's economy to allow for the massive production of war materiel required to first support the Great Britain, then the Soviet Union and other nations, and finally to support direct American involvement in World War II. An overview of the major presidential declarations, executive orders, and statutes that contributed to the emergence of the United States wartime economy appears in Table 1.1.

Table 1.1

Major Presidential Declarations, Statutes, and Executive Orders Concerning the American Economy Before and During World War II

Date	Event
9/8/1939	Roosevelt declared a "Limited National Emergency" and signed Executive Order 8248, effective 9/11/1939, "Establishing the Divisions of the Executive Office of the President" and defining functions and duties.
5/29/1940	Roosevelt revived the National Defense Advisory Council (NDAC) first established on 8/29/1916 (39 Stat. 649).
6/ 1940	Roosevelt appointed Henry Stimson as Secretary of War and Frank Knox as Secretary of the Navy. The Senate approved both appointments on July 10, 1940. Both were Republicans and their appointments made Roosevelt's cabinet bipartisan.
6/17/1940	The Assistant Secretaries of War and Navy established the Priorities Committee within the Army Navy Munitions Board (ANMB).
6/25/1940	Congress revised the Reconstruction Finance Corporation's (RFC) charter (54 Stat. 572). The revision allowed the RFC to create government corporations.
6/28/1940	Congress passed the National Defense Expediting Act (54 Stat. 676), which provided the legal basis for giving priority to Army and Navy Orders.
8/12/1940	The ANMB issued its first priorities directive. The ANMB divided military procurement into ten categories of ratings ranging from A-1 to A-10. The most critical items received an "AA" rating.
8/22/1940	The RFC chartered the Defense Plant Corporation.
8/29/1940	The RFC chartered the Defense Supply Corporation.
9/16/1940	Congress passed an Act "[t]o provide for the common defense by increasing the personnel of the armed forces of the United States and providing training" (the Selective Service Act, 54 Stat. 885). Section 9 addressed war production and gave the President authority to require private production for defense projects and the authority to seize plants if necessary. The law required private companies to give preference to orders from the United States.

- 10/8/1940 Congress passed the Second Revenue Act of 1940 (54 Stat. 974). Title III provided the provisions for accelerated tax depreciation on private spending to fulfill defense contracts.
- 11/27/1940 The ANMB issued a new directive dividing procurement rating for class A-1 into A-1-a to A-1-j.
- 1/7/1941 Roosevelt issued Executive Order 8629, which established the Office of Production Management (OPM).
- 3/11/1941 Congress passed the Lend-Lease Act, which allowed the U.S. to give aid to Great Britain, the Soviet Union, and other allies during World War II (55 Stat. 31).
- 4/11/1941 Roosevelt issued Executive Order 8734, which established the Office of Price Administration and Civilian Supply that assumed responsibility for price stabilization and consumer protection from the NDAC and the OPM.
- 5/27/1941 Roosevelt delivered his speech, "Announcing Unlimited National Emergency."
- 5/31/1941 Congress amended the National Defense Expediting Act (55 Stat. 236) extending priority power to civilian supplies, foreign purchases and subcontracts (needed for Lend-Lease).
- 8/18/1941 Congress extended the Selective Service Act (55 Stat. 626).
- 8/28/1941 Roosevelt issued Executive Order 8875, "Delegation and Coordination of Priority Authority," to further define the Office for Emergency Management following the unlimited national emergency as declared on May 27, 1941, which resulted in the creation of the Supply Priorities and Allocation Board (SPAB).
- 12/18/1941 Eleven days after the attack on Pearl Harbor, Congress passed the First War Powers Act (55 Stat. 838), which permitted supply contract amendments when mutually agreeable without extended negotiations and authorized add-ons to orders without signing new contracts.
- 1/16/1942 Roosevelt issued Executive Order 9024, "Establishing the War Production Board in the Executive Office of the President and Defining Its Functions and Duties" (WPB).
- 1/24/1942 Roosevelt issued Executive Order 9040, "Defining Additional Functions and Duties of the War Production Board."
- 3/27/1942 Congress passed the Second War Powers Act (56 Stat. 176), which granted the Army, Navy, WPB, and other agencies the authority to inspect plants and review the financial records of companies with war contracts.
- 4/28/1942 Congress passed "the First Renegotiation Act" (56 Stat. 226 at 244), which required the insertion of a clause in all prime contracts and subcontracts greater than \$100,000 allowing for renegotiation of profits.

Late 1942– The WPB implemented the Controlled Materials Plan (CMP) to conserve
Early 1943 materials needed for war, especially copper, steel, and aluminum.

2/25/1944 Congress passed the Second Renegotiation Act (58 Stat. 1944), which provided more detail and established the War Contracts Price Adjustment Board.

Most of the laws and executive orders listed in Table 1.1 empowered the executive branch through various agencies of the government to increase defense production or otherwise manage the economy. If necessary, the President was empowered, through the War or Navy Departments or a federal agency, to seize plants that held government contracts to prevent poor management or labor unrest from undermining production and jeopardizing the war effort. However, if such a plant takeover occurred:

[t]he compensation to be paid to any individual, firm, company, association, corporation, or organized manufacturing industry for its products or material, or as rental for use of any manufacturing plant, while used by the United States, shall be fair and just. . . .⁸

The government rarely used this power during World War II. From 1941 through 1945, there were 64 instances when the Army, Navy, or another agency of the Federal Government seized a plant. All but 7 of the 64 were because of labor issues, usually strikes.⁹ In order to seize a plant, the President had to issue an executive order. The Petroleum Administration for War (PAW) was involved in 5 seizures, all in 1945, including one that involved the Humble Oil and Refining Company's Ingleside Refinery in June.¹⁰ In their corporate history of Humble Oil and Refining Company, Henrietta Larson and Kenneth Porter wrote of the June 1945 strike and seizure at Ingleside, "[t]he seizure was merely a token one, since the company continued to operate the refinery for its own account under the superintendency of Frank Goss."¹¹ As a point of reference, at the end of World War II, the Civilian Price Administration (CPA) published a 4-

⁸ 54 Stat. 885, 9/16/1940, at p. 892.

⁹ J. Ohly, Industrialists in Olive Drab, The Emergency Operation of Private Industries During World War II (Washington, DC: Center of Military History, 1999), MISC-00014939-84, see Appendix C.

¹⁰ Ohly, Industrialists in Olive Drab, MISC-00014939-84, see Appendix B, at MISC-00014981. Also see Executive Order 9564 that President Harry Truman issued on 6/3/1945, 10 *F. R.* 6791-92. President Truman revoked Executive Order 9564 on 8/25/1945, when he issued Executive Order 9603, 10 *Fed. Reg.*, 10960. The Ingleside Refinery was among the facilities of 31 companies that President Truman authorized the Secretary of the Navy to take possession and operate in October 1945, 10 *Fed. Reg.*, 12592-93. In response to the October strikes, Truman instructed the Secretary of Labor to appoint an "oil panel to examine and make recommendations on the strike." See, "Oil Panel, Report and Recommendations to the Secretary of Labor," 1/12/1946, MISC-00015124-70.

¹¹ H. M. Larson and K. W. Porter, History of Humble Oil and Refining Company (New York: Harper and Brothers, 1959), MIS-00023931-24344, at MIS-00024262.

volume listing of all government supply contracts worth greater than \$50,000. There are approximately 26,000 locations with manufacturing plants listed in the CPA publication.¹²

D. Price Controls, Inflation, Early Planning Efforts, and the War Production Board

Another theme of the laws and executive orders listed in Table 1.1 concerned contracts and prices. Keeping prices and wages in check was necessary to keep the cost of the war down and prevent inflation. Most notable in this regard were the Office of Price Administration (OPA), the Second War Powers Act of 1943, and the Renegotiation Acts of 1942 and 1944. Part of the impetus for the OPA and the other acts was the memory of high inflation during World War I and the alleged profiteering investigated by the Nye Committee in the mid 1930s. During World War I, wholesale prices and the cost of living increased by more than 80%. During World War II, however, wholesale prices rose about 38% and the cost of living by around 27%.¹³ Also important was the overall cost of World War II and the nation's ability to pay for the war. One historian estimated that the United States spent \$300 billion on war contracts.¹⁴

From the time when President Roosevelt declared a "limited national emergency" in September 1939 to the establishment of the War Production Board (WPB) in January 1942, a series of governmental organizations were involved in the process of moving the United States toward a wartime economy.¹⁵ The various organizations that preceded the WPB struggled in their attempts to mobilize. In May 1940, President Roosevelt reactivated the National Defense Advisory Commission (NDAC) to provide advice on numerous elements of war planning, including industrial production, industrial materials, and price stabilization.¹⁶ The following month the Army Navy Munitions Board (ANMB) created a system whereby businesses would give priority to orders in support of national defense.¹⁷ On June 28, 1940, Congress passed legislation that gave the President the authority to require business and industry to give priority to orders received from the Army or Navy.¹⁸ In January 1941, the President delegated that authority to the Office of Production Management (OPM), yet another agency tasked with

¹² Civilian Price Administration, Alphabetic Listing of Major War Supply Contracts, Cumulative June 1940 through September 1945 (Civilian Price Administration, Industrial Statistics Division), four volumes. Morgan Angel counted the entries to arrive at the 26,000 figure.

¹³ Koistinen, Arsenal of World War II, p. 432.

¹⁴ Koistinen, Arsenal of World War II, p. 434.

¹⁵ R. Smith, United States Army in World War II, The War Department, The Army and Economic Mobilization (Washington, DC: Government Printing Office, 1959), p. 101.

¹⁶ Smith, United States Army in World War II, p. 103.

¹⁷ Smith, United States Army in World War II, pp. 508-509.

¹⁸ 54 Stat. 676, 6/28/1940.

overseeing defense production.¹⁹ These agencies—NDAC, ANMB, and the OPM—and their functions would later be subsumed by the War Production Board (WPB).²⁰

During World War II, the WPB was the primary federal agency responsible for ensuring that the American economy mobilized for war and produced whatever was necessary for the United States and its allies to succeed in battle. The WPB set broad industrial policy to ensure that those engaged in military production received the necessary materials. Although the WPB established allocation criteria, the agency did not design products, own plants, or engage in procurement. In fact, the WPB relied on the cooperation of American business and industry in fulfilling its wartime mission.²¹ Cooperation between private enterprise that provided the much needed expertise and knowledge, and the federal government that provided the financial capital for plant expansion and a market for war production characterized the American economy during World War II.

The allocation of steel, aluminum, and copper was of primary importance to the WPB. Each of these metals was crucial to the war effort and the American military depended on their proper allocation and use for effective mobilization. Nonessential use of steel was prohibited and the WPB and other agencies promoted conservationist steps to increase its supply.²²

During 1942, shortages and disorganization plagued the American economy. In the fall of that year, the WPB developed the Controlled Materials Plan (CMP) that focused on the allocation of steel, aluminum, and copper. Under the CMP, the WPB adopted a vertical allocation system in which it allocated to the military and other agencies raw material and semi-finished materials for redistribution to their contractors. This placed the burden of proper allocation on the military and other entities. The WPB continued to issue priority orders, but the burden of the proper use of a particular commodity fell on the end user, usually the military. During the war, the priority system functioned economy wide. Enactment of the CMP brought

¹⁹ Executive Order 8629, 1/7/1941.

²⁰ Executive Order 9024, 1/16/1942.

²¹ See A. Winkler, Home Front U.S.A., America during World War II, 2nd ed. (Wheeling, IL: Harlan Davidson, 2000); Smith, United States Army in World War II; and Koistinen, Arsenal of World War II, for further discussion on the role and importance of the WPB during World War II and the role of business and industry. Also see Industrial Mobilization for War, History of the War Production Board and Predecessor Agencies, 1940-1945 (Washington, DC, 1947; rpt. New York: Greenwood Press, 1969); Robert Connery, The Navy and the Industrial Mobilization in World War II (Princeton, NJ: Princeton University Press, 1951); and David M. Kennedy, Freedom From Fear, The American People in Depression and War, 1929-1945 (New York: Oxford University Press, 1999), especially Chapter Eighteen, “The War of Machines.” For a first-hand account of WPB activities during WWII, see the Love Canal litigation testimony of Lincoln Gordon, who worked for NDAC and then was WPB Program Vice Chairman, United States of America, The State of New York and UDC-Love Canal v. Hooker Chemicals & Plastics, Corp., et al., CIV 79-990, (U. S. District Court, W.D. New York, 1991).

²² Koistinen, Arsenal of World War II, p. 142.

increased order to the economy and under the CMP, “the entire mobilization program revolved around the allocation of the three most basic materials, copper, steel, and aluminum.”²³

E. Shifting the Risk from Private Enterprise to the Federal Government

A third major theme, and likely the most important, of the laws and executive orders listed in Table 1.1 was the need to increase defense production in the United States. The United States military was almost nonexistent in the 1930s. Between 1933 and 1935, there were fewer than 500 military aircraft built each year. In 1939, the number was about 2,200 and in 1940, it exceeded 6,000.²⁴ The size of the Army was not much better. This deficiency led to the nation’s first peacetime draft in September 1940. The Navy had fared somewhat better given the need to protect the country’s extensive coastline.

The support and participation of American businesses was essential to build the American military and to sustain the war effort. Given that the country was only starting to emerge from the Great Depression, business executives and industrialists were hesitant to invest in machines, equipment, buildings, and property that might have limited use beyond military production. Of particular concern was excess plant capacity. Despite economic improvement by 1940, the gross national product in 1940 was only 9% of what it had been in 1929, before the stock market crashed. Unemployment in 1940, although dropping, was at 14.6%. One economist has noted, “the expansion of the late 1920s had so overbuilt the nation’s fixed capital stock that it would not ordinarily have been worked off long before 1940.”²⁵ In discussing the steel industry, the same economist wrote, “[f]ear of peacetime excess capacity, new firm entry, and underestimation of requirements contributed to the persistence of shortages in materials in other industries throughout the entire war period.”²⁶

The goal of President Roosevelt and the Federal Government, therefore, was to find ways to engage private enterprise in the manufacture of the many items required to fight a war. In

²³ Koistinen, Arsenal of World War II, pp. 148, 206-07. A company needing to use copper, steel, or aluminum need to file an application listing the amount of each needed for the project. In 1944, for example, when the Standard Oil Company of Louisiana wanted to build a master separator it filed the necessary applications with the Petroleum Administration for War. Section C of the application, the “Summary Schedule of Controlled Materials,” listed estimated amounts of various types of steel and carbon required to complete the project, see M. Boyer to PAW, 7/5/1944, BRHIS-00014046-55. Although the WPB directed the priority system, it had given the PAW the authority to grant priorities for the petroleum industry, see J. Knowlson to R. Davies, 5/22/1942, reprinted in Frey and Ide, A History of the Petroleum Administration for War, 1941-1945 (Washington, DC, GPO: 1946), MIS-00022327-854, at MIS-00022779. Standard of Louisiana had numerous projects for which it received priority ratings. As of 1/27/1945, for example, the company had 31 projects that received priority approval, see J. Voohties to G. Gibson, 1/27/1945, BRHIS-00006962-63.

²⁴ D. M. Pattillo, Pushing the Envelope, The American Aircraft Industry (Ann Arbor: University of Michigan Press, 1998), p. 125.

²⁵ H. Vatter, The U.S. Economy in World War II (New York: Columbia University Press, 1985), p. 7.

²⁶ Vatter, The U.S. Economy in World War II, p. 7.

August 1940, Secretary of War Henry L. Stimson summarized the administration's view of mobilization when he said, "'If you are going to try to go to war, or to prepare for war, in a capitalist country, . . . you have got to let business make money out of the process or business won't work.'"²⁷ Yet, not everyone in the administration agreed with that assessment. In the same month that Stimson made the above statement Donald Nelson, who would later headed the WPB, questioned the use of public funds for plant expansion when warned that giving a defense contractor "'a new or better plant, free' in addition to his profit, was 'unwarranted and unnecessary.'"²⁸

Donald Nelson's views notwithstanding, the government adopted numerous policies that provided public money for private expansion in order to increase plant capacity and move the country to a wartime economy, including Emergency Plant Facilities Contracts (EPF), the Defense Plant Corporation (DPC) and Certificates of Necessity. These programs shifted the financial risk of war-related plant expansion and increased production from private enterprise to the Federal Government. The Standard Oil Company of Louisiana applied for and received Necessity Certificates and there were a number of plantors at the Baton Rouge plant. Humble Oil and Refining Company participated in all three programs.²⁹ Both companies also participated in the Aviation Gasoline Reimbursement Plan, in which the government agreed to reimburse petroleum companies for uneconomical costs associated with aviation gasoline production. These policies and programs, and other government initiatives did not find immediate success. For example, EPF contracts proved cumbersome and early efforts at creating a priority system were only marginally successful. Only after a period of trial and error did the necessary funding and planning mechanisms start to work. Nevertheless, by 1943 the American economy was in full production and was soon out producing the Axis powers.

American business fared well during World War II. The war effort provided the necessary stimulus to pull the country out of the Great Depression and, in the words of one prominent historian, "business did what was necessary on all fronts, and business leaders enjoyed revived prominence and prestige."³⁰ The pre-war fear of post-war excess plant capacity largely proved unfounded. Although inflation occurred when the war ended, the United States did not enter another economic depression. After the war ended, private enterprise often purchased many of the publicly owned plants and factories as well as machinery and equipment usually at reduced prices. Although income and excess profit taxes restrained corporate profits

²⁷ Winkler, Home Front U.S.A., p. 14; and D. M. Kennedy, Freedom From Fear, The American People in Depression and War, 1929-1945 (New York: Oxford University Press, 1999), p. 622.

²⁸ G. White, Billions for Defense, Government Financing by the Defense Plant Corporation During World War II (Tuscaloosa, AL: University of Alabama Press, 1980), p. 26.

²⁹ In this report "Standard" will refer to the Standard Oil Company of Louisiana. "Standard of New Jersey will refer to the Standard Oil Company of New Jersey.

³⁰ Winkler, Home Front U.S.A., p. 27.

prime contractors and subcontractors still saw profits of between 10% and 14%, usually on greatly expanded orders.³¹

1. Certificates of Necessity

The Federal Government encouraged private investment by allowing a business to claim an accelerated rate of tax depreciation for tools, equipment, or buildings purchased to manufacture defense materiel. The Second Revenue Act of 1940, which became law in October of that year, allowed businesses to “deduct from gross income 20 percent annually, for a period of five years, of the cost of all facilities created or acquired for national defense.”³² Before a company could claim the deduction:

Each new facility receiving the amortization privilege had to be certified as necessary to national defense. . . Amortization was applicable only to that portion of a given facility considered to be necessary to defense needs. . .³³

To receive authority to take the deduction, a manufacturer needed to apply to the government for a “Necessity Certificate” documenting that the facilities listed in the application were necessary to national defense. When doing so, the company had to file a standard application, swear to the application’s truthfulness, and submit an “Appendix A” that listed all land, buildings, or equipment that would be acquired during the accelerated depreciation period.³⁴ One historian recently wrote of this program, “[a]ccelerated depreciation worked only where the facility had unquestioned commercial value.”³⁵

By definition, the company would own any buildings, machinery, or equipment listed on a company’s Necessity Certificate application. Obtaining the certificate would allow the business to claim depreciation for tax reasons on the facilities on an accelerated basis. The company, however, would still purchase and own the equipment. Therefore, the Standard Oil Company of Louisiana and the Humble Oil and Refining Company owned everything listed on their Necessity Certificates.

³¹ Koistinen, Arsenal of World War II, p. 434. Regarding profits and taxes Vatter wrote, [i]t seems clear that profitability after taxes was constrained during the war years. But given the almost riskless, high-level aggregate economic setting, the corporate pecuniary sacrifice was modest,” Vatter, The U.S. Economy in World War II, p. 56.

³² 54 Stat. 974, 10/8/1940; and Smith, United States Army in World War II, p. 459. Under the law, a business could initially request accelerated depreciation for purchases dating from 6/10/1940. In October 1941, Congress changed the date to January 1, 1940.

³³ Smith, United States Army in World War II, p. 460.

³⁴ Smith, United States Army in World War II, pp. 461-62.

³⁵ Koistinen, Arsenal of World War II, p. 55.

The Necessity Certificate program was successful in encouraging private investment in facilities. Under most circumstances, a company would have completely amortized the cost of the new facilities in five years. Historians and others have thought that companies decided to file for Necessity Certificates for tools, equipment, or facilities that management believed would be of value after the war ended. Overall, during World War II, the Army and Navy issued approximately 39,000 certificates and the WPB issued approximately 4,000 certificates. The estimated value of all Necessity Certificates issued during World War II was \$7.3 billion.³⁶ The 1945 Standard Oil of New Jersey Annual Report stated that during the war the company expended \$155 million for facilities. The company received accelerated depreciation on \$104 million.³⁷

One application that Standard of Louisiana filed revealed that company management had a keen understanding of the importance that high-octane gasoline would play in World War II:

Construction of the facilities sought to be certified was begun shortly after the start of the war in Europe and this project was undertaken by the applicant because of the realization by the industry as a whole that the future conduct of war would require tremendous quantities of 100 octane gasoline. As an aftermath of Munich [September 1938], military flying received far more stimulus than could have been visioned a few years before and government money in unprecedented amounts was being poured into military aircraft production and development. Many articles appeared in the oil trade journals at that time stressing the importance of aviation gasoline manufacture and the future needs of military aviation. Five months after these facilities were completed and placed in operation, a program was presented to construct facilities at the applicant's Baton Rouge refinery which would more than treble 100 octane production. These facilities have been installed and are covered by Necessity Certificate No. WD-N-6410 [sic].³⁸

2. The Defense Plant Corporation

In 1932, Congress created the Reconstruction Finance Corporation (RFC) to make loans during the Great Depression. In June 1940, Congress amended the Reconstruction Finance Corporation Act of 1932 to read in part:

(a) for the purpose of producing, acquiring, and carrying strategic and critical materials as defined by the President, and (b) for plant construction, expansion and equipment, and

³⁶ House Report No. 504, 82d Congress, 1st Session, Certificates of Necessity and Government Plant Expansion Loans, 5/28/1951, at page 22. Evidently referring to Korean War program that had issued \$5 billion in Necessity Certificates in the first five months of the war the report began, "[t]he certificate of necessity program is the biggest bonanza that ever came down the Government pike."

³⁷ Standard Oil Company of New Jersey, Annual Report for 1945, BAYHIS-00002158-89, at BAYHIS-00002177.

³⁸ Application for a Necessity Certificate, 4/21/1943, WD-N-27023, US-BR001155-66.

working capital, to be used by the corporation in the manufacture of equipment and supplies necessary to the national defense. . .³⁹

With these new powers, the RFC eventually established eight wartime subsidiaries, including the Defense Plant Corporation (DPC). The RFC chartered the DPC on August 22, 1940, and the DPC signed its first contract in early September 1940.⁴⁰

A DPC contract was relatively straightforward. Officials from the Army, Navy, WPB or some other procurement agency that desired to enter into a supply contract with a private company would meet with company representatives to determine whether additional buildings, machinery, or equipment were necessary to fulfill the order. The procurement agency would then sponsor the contract with the DPC. The DPC, in turn, would provide the funding for the purchase of equipment and then lease the equipment to the contractor. The DPC lease would include a rent schedule, termination provisions, and language concerning purchase options. The title to the buildings, machinery, or equipment would remain with the DPC. On construction projects, a DPC engineer was onsite “to pass upon all routine problems. . .”⁴¹ Some DPC contracts, including many of those for projects at Baytown and Baton Rouge, contained language appointing the company as the DPC’s agent in designing a plant, negotiating construction contracts, and overseeing construction. The lessee was therefore responsible for engaging the necessary construction contractors or, if the DPC was purchasing equipment, submitting purchase orders or contracts. In this role, the company acted like a general contractor in overseeing plant design and construction. This occurred at numerous plantors including those at Baytown and Baton Rouge. During the war, there were more than 2,300 DPC plants and projects, valued at more than \$7.2 billion. Because some contracts involved multiple locations, the actual number of locations with a DPC contract is around 2,700. Altogether, DPC contracts accounted for 30% of the funding for building new facilities and the purchase of equipment during the war.⁴² The government, through the DPC, thus held title and assumed the ownership risk of nearly one-third of the plant capacity built during World War II.

3. Emergency Plant Facility Contracts

The Emergency Plant Facilities (EPF) contract program was developed concurrently with the formation of the DPC. EPF contracts differed from DPC contracts in that if additional buildings or equipment were needed to fulfill the terms of the supply contract, the contractor would finance the required expansion or purchases.⁴³ Often, this meant taking out a bank loan and incurring the applicable interest rates. Once the construction and installation was completed,

³⁹ 54 Stat. 572.

⁴⁰ Smith, United States Army in World War II, p. 485.

⁴¹ Smith, United States Army in World War II, pp. 485-493.

⁴² White, Billions for Defense, pp. 80-82; and Projects Approved by RFC-Office of Defense Plants as of 6/30/1946, US-GEN003943-4107. A “Plantor” was the nickname given to a plant that the DPC financed.

⁴³ Humble signed one EPF contract during World War II that was associated with construction of the Baytown Ordnance Works.

and production was underway, the government would reimburse the contractor in 60 equal monthly payments. After the 60th payment, the sponsoring agency would take title to the buildings or equipment, or both.⁴⁴

In comparison to the success of the DPC, historians and others have usually considered the EPF contract program a failure. During the war, businesses entered into \$350 million in EPF contracts compared to \$7.2 billion DPC contracts nationwide. Historians point to bureaucratic problems and financial risks to bankers and businessmen as the main reasons for the lack of success for the EPF program.⁴⁵

F. Programs and Policies Specific to the Petroleum Industry

In addition to the programs and policies already discussed, the Federal Government took additional steps to resolve economic issues unique to the petroleum industry and its participation in the wartime economy. Developments in aircraft design and military theory since World War I coupled with international events in the 1930s suggested that if another world war broke out combatants would use large numbers of aircraft and mechanized vehicles.⁴⁶ This meant petroleum products would be a major factor in a future war. Aircraft use in the Spanish Civil War and Hitler's *blitzkrieg* tactics demonstrated this to the American military and provided additional impetus for research into larger and more powerful aircraft that required higher-octane fuel. Naval vessels, the Merchant Marine, and tanks, transport carriers, trucks, and jeeps—to name just a few things—would also need fuel. Business, industry, government, and civilians would use petroleum products on the home front as well. Yet, consistent with economy-wide concerns, companies engaged in petroleum extraction, refining, and shipping were hesitant to invest in new infrastructure.

The RFC, with presidential approval, created the Defense Supply Corporation (DSC) in August 1940 with the express purpose of purchasing aviation gasoline. Initially, the RFC allocated \$50 million to the DSC “for the purchase and carrying of this gasoline.”⁴⁷ For about a year, the DSC and other Federal agencies took little action in increasing the nation's supply of aviation gasoline. However, the spring and summer of 1941 was a pivotal time in the United States' preparation for eventual entry into World War II. In May, President Roosevelt declared an “Unlimited National Emergency.” It was also in May that the President established the Petroleum Coordinator for National Defense, also known as the Office of Petroleum Coordinator (OPC). Roosevelt appointed Secretary of the Interior Harold Ickes chairman and Ralph

⁴⁴ Koistinen, Arsenal of World War II, pp. 55-58.

⁴⁵ Koistinen, Arsenal of World War II, pp. 55-58. Also see White, Billions for Defense, pp. 80-82.

⁴⁶ Michael S. Sherry examines the development strategic warfare in The Rise of American Air Power. See Chapters two through four, “The Age of Prophecy,” “The Decline of Danger,” and “The Attractions of Intimidation,” pp. 22-115.

⁴⁷ J. Jones to F. Knox, Secretary of the Navy, 9/27/1940, MIS-00003040. Also see, E. Stettinius, Jr. to J. Jones, 8/14/1940, MIS-00003037-38.

Davies—formerly of Standard Oil of California—vice chairman.⁴⁸ The OPC, and later the Petroleum Administration for War (PAW) relied on the oil industry for expertise. The history of the PAW written shortly after the war noted “approximately three-fourths of the executive and technical staff of PAW came from oil companies, large and small alike, or from fields closely associated with the oil industry.”⁴⁹

Numerous committees comprised of individuals in the petroleum industry advised the OPC and later the PAW. The Petroleum Industry War Council (PICW), which held its first meeting on December 8, 1941, was one such committee. It initially had 66 members, but later that number increased to 78. Bruce Brown of the PAW appointed the Aviation Gasoline Advisory Committee (AGAC) in September 1942. Individuals from the oil industry served on the AGAC. The history of the AGAC contained this quote:

[i]t is a foregone conclusion . . . that the production records which the Petroleum Industry established in manufacturing aviation gasoline couldn’t have been attained without the complete cooperation of the various companies in pooling their technical knowledge and skill.⁵⁰

In late July 1941, the OPC sent out questionnaires to the nation’s petroleum companies inquiring about production of 100-octane aviation gasoline and learned that production capacity was about 40,000 barrels per day (42 gallons per barrel). In September, the OPC announced that aviation gasoline production needed to double within a year and triple within two years.⁵¹ Subsequent events proved those figures to be an underestimation.

PAW and DSC officials, military leaders, and the petroleum industry all agreed that a significant increase in production of high-octane aviation gasoline and all petroleum products was necessary. The petroleum industry, as occurred economy wide, was fearful of expanding too quickly and overexpansion in general fearing excess capacity after the war. A quick end to hostilities could bring financial ruin to a company that had invested heavily to increase production. Additionally, the Social Security Act of 1935 and recently established

⁴⁸ President Roosevelt declared the “Unlimited National Emergency” on May 27, 1941. President Roosevelt established the office of Petroleum Coordinator for National Defense on May 28, 1941. On April 20, 1942, the office’s name was changed to Petroleum Coordinator for War. The Petroleum Administration for War was established by Executive Order 9267 on December 2, 1942, and assumed the functions of the Petroleum Coordinator for War.

⁴⁹ Frey and Ide, A History of the Petroleum Administration for War, MIS-00022327-854, at MIS-00022376.

⁵⁰ Frey and Ide, A History of the Petroleum Administration for War, MIS-00022327-854, at MIS-00022412-17; and History of the Aviation Gasoline Advisory Committee, MAA_EM-003284-88.

⁵¹ W. Tidwell and B. O’Callaghan, The Role of Defense Supplies Corporation in the Wartime Aviation Gasoline Program, MIS-00022855-23086, at MIS-00022868. The official history of the Petroleum Administration for War states that in June 1941 nationwide aviation gasoline production figures varied from 33,400 to 71,000 barrels daily, Frey and Ide, A History of the Petroleum Administration for War, MIS-00022327-854, at MIS-00022565.

unemployment programs in some states required additional expenditures for enlarged labor forces.

Although beginning in 1940 a reworking of the relationship of government to business shifted the financial risk of expansion away from private enterprise and to the Federal Government, problems specific to high-octane aviation gasoline remained. Most important was the prohibition of the Army or Navy to enter into purchase contracts spanning longer than one year. As Tidwell and O'Callaghan wrote in their history of the DSC:

Meanwhile, PAW and industry representatives were exploring the possibility of expanding productive facilities. They soon saw that an expansion of facilities to the extent desired was a risky multi-million dollar proposition with relatively poor postwar commercial possibilities. Private capital was willing to invest in the program if it could be reasonably assured of a return on its investment. But neither the Army nor Navy could make purchase commitments beyond the year in which they were operating. Industry felt that a one-year purchase commitment was inadequate for the size of the investment required.⁵²

The result was an informal agreement in November 1941 between the PAW, the Army, the Navy, and the RFC in which the DSC—a corporation not subject to one-year budget restrictions—would procure all aviation gasoline for resale to the Army and Navy.⁵³ The government acting through the DSC signed 38 basic contracts and 15 supplemental contracts with 21 companies including Standard Oil of New Jersey and Humble Oil for the purchase of 100-octane aviation gasoline and components.⁵⁴

Another issue of concern to the petroleum industry was the risk of monetary loss due to the high costs of producing 100-octane aviation gasoline and its components. As discussed in the History of the Petroleum Industry for War:

[t]he manufacturers of 100-octane were operating under contract to Defense Supplies Corporation to supply finished aviation gasoline at a predetermined price, which was generally lower than that of the components which PAW was asking them to purchase.

⁵² Tidwell and O'Callaghan, The Role of Defense Supplies Corporation, MIS-00022855-23086, at MIS-00022869. In reviewing the expansion of aviation gasoline facilities Tidwell and O'Callaghan noted that large companies “preferred not to use the DPC mechanism” and wrote that the PAW desired to achieve “the widest possible participation by industry.” In discussing the involvement of small refiners Tidwell and O'Callaghan wrote, “the DPC mechanism was used when the company indicated its willingness to take part in the program,” at MIS-00022871.

⁵³ Tidwell and O'Callaghan, The Role of Defense Supplies Corporation, MIS-00022855-23086, at MIS-000220869-876.

⁵⁴ Tidwell and O'Callaghan, The Role of Defense Supplies Corporation, MIS-00022855-23086, at MIS-000220890; Agreement between Defense Supplies Corporation and Standard Oil Company of New Jersey, 100-Octane Aviation Gasoline, 1/13/1942, MIS-00022185-210; and Contract between Defense Supplies Corporation and Humble Oil & Refining Company, 100-Octane Aviation Gasoline as of 2/4/1942, BAYHIS-00000585-602.

This was particularly true when freight and handling costs were taken into account as they had to be.⁵⁵

In June 1942, Ralph Davies addressed this issue in a letter to Jesse Jones—who simultaneously served as Director of the RFC, Federal Loan Administrator, and Secretary of Commerce—and explained that increased production was possible, but significant financial loss to the petroleum industry could result. Davies provided Jones with a draft agreement that called on the DSC to pay for “extraordinary costs directly, after proper certification by the manufacturers and recommendations by the Office of the Petroleum Coordinator.”⁵⁶ In July, the Army, Navy, PAW, and DSC signed a “Memorandum Of Understanding” that incorporated Davies’s idea that the DSC would reimburse refiners for extraordinary costs.⁵⁷ The July agreement became known as the Aviation Gasoline Reimbursement Plan.

In December 1942, the Army, Navy, DSC, and PAW formalized the informal agreement of the previous December. With the signing of the formal agreement the War Department advanced the DSC \$34 million and the Navy Department advanced the DSC \$66 million for the purchase of 100-octane aviation gasoline. The DSC could also sell aviation gasoline back to refiners for resale to non-military consumers. The agreement was to run for 6 months, although the parties later extended it for the remainder of the war.⁵⁸

The DSC aided expansion of aviation gasoline production in other ways. The DSC made what were essentially interest-free loans to refiners. The DSC loaned approximately \$190 million for plant expansion throughout the nation. In January 1942, the DSC advanced Standard Oil of New Jersey \$14.4 million to expand the company’s production of aviation gasoline through its subsidiaries including the Standard Oil Company of Louisiana.⁵⁹

⁵⁵ Frey and Ide, A History of the Petroleum Administration for War, MIS-00022327-854, at MIS-00022573.

⁵⁶ R. Davies to J. Jones, 6/2/1942, MAA_EM-000876.

⁵⁷ “Memorandum of Understanding on Plan To Reimburse Manufactures of 91 Octane and Higher Aviation Gasoline for Loses Incurred in Following Office of Petroleum Coordinator Recommendation,” 7/24/1942, MAA_EM-000204-06 and MAA_EM-000873-75. The Memorandum of Understanding was extended through the duration of the war and portions of it were extended until June 30, 1947. See “Agreement Extending and Modifying The Aviation Gasoline Reimbursement Plan and the Four Party Purchase Agreement,” 7/1/1944, MAA_EM-000207 and MAA_EM-001447-55; and Continuation 7/1/1946, MAA_EM-000887-88. In their history of the DSC, Tidwell and O’Callaghan wrote that among those for which expenses could be reimbursed were the blending program, changes in plant facilities and equipment, and production with frequent specification changes, Tidwell and O’Callaghan, The Role of Defense Supplies Corporation, MIS-00022855-86, at MIS-00022931.

⁵⁸ An agreement between the Army, Navy, DSC, and PAW, 12/19/1942, MAA_EM-000213-17.

⁵⁹ Although the DSC charged an interest rate of 2%, companies were allowed to incorporate that charge into the cost of aviation gasoline. Tidwell and O’Callaghan, The Role of Defense Supplies Corporation, MIS-00022855-23086, at MIS-00022890-91; and Application for a Necessity Certificate, 4/21/1943, WD-N-27023, US-BR001155-66.

The OPC, and later the PAW, issued 81 recommendations and directives to implement policy decisions concerning petroleum products during World War II. The recommendations and directives were often regional or national in scope, and did not usually address a specific refinery. Several recommendations or directives specifically addressed aviation gasoline production or synthetic rubber production.⁶⁰ Other recommendations and directives addressed issues related to product shipment and distribution. For example, a number concerned tanker cars, which were in especially short supply until completion of the large interregional pipelines midway through the war. Still others focused on specific products such as asphalt and lubricants, limiting the amount of automobile gasoline available for retail sale, or concerned industry committees.⁶¹ In their history of the PAW, Frey and Ide said that 17 recommendations were to the general public, or to customers and purchasers of petroleum products, 5 to petroleum producing states, 56 to either branches of the petroleum industry or the entire industry, 9 to oil companies, and 30 to one of the petroleum industry committees.⁶²

The shifting of financial risk to the Federal Government via Necessity Certificates, the Defense Plant Corporation, and Emergency Plant Facilities Contracts created a favorable situation for both the government and private industry. The increased production that resulted from plant expansion benefited the Army and Navy, and contributed significantly to the Allied victory. And, those companies that produced the necessary war materiel benefited from the increased business.

G. The Development of 100-Octane Aviation Gasoline and Synthetic Rubber

Research and development in the mid to late 1920s ultimately led to the production of high-octane aviation gasoline in the 1930s. The Standard Oil of New Jersey, and its affiliates Standard of Louisiana and Humble Oil and Refining Company, expanded the company's research and development interests at a time when the company was expanding its operations worldwide.⁶³ As part of this research and development effort, Standard of New Jersey began discussions with the I. G. Farben Company of Germany. At the time, I. G. Farben was researching the conversion of coal into an oil-like substance. Officials from Standard of New Jersey accepted the German firm's invitation to visit its research facilities. Standard officials

⁶⁰ For example, Recommendation 8, 8/23/1941, restricted blending agents to aviation gasoline production. Recommendation 16, 12/9/1941, was to increase aviation gasoline production. Recommendation 23, 12/18/1941, concerned the use of alkylate in 100-octane aviation gasoline production. Recommendation 28, 1/1/1942, was to increase 100-octane aviation gasoline supplies. See appendix nine in Frey and Ide, A History of the Petroleum Administration for War, MIS-00022327-854, at MIS-00022793.

⁶¹ Frey and Ide, A History of the Petroleum Administration for War, MIS-00022327-854, at MIS-00022793. Appendix nine of this book is an index of the OPC and PAW recommendations and directives.

⁶² Frey and Ide, A History of the Petroleum Administration for War, MIS-00022327-854, at MIS-00022392. The total exceeds 81 because the overlapping nature of some of the directives.

⁶³ H. Larson, E. Knowlton, and C. Popple, New Horizons, History of Standard Oil Company (New Jersey) 1927-1950 (New York, 1971), MIS-00023443-930. See especially Chapter Three, "Producing Policies and Programs, 1927-1939", and Chapter Five, "Expansion of Foreign Production, 1927-1939."

believed that the cost of using the hydrogenation process to extract oil from coal was too expensive, but in 1927 Standard and I. G. Farben signed a 25-year agreement under which Standard would carry on research into using the process. Additional agreements followed and an experimental plant that could hydrogenate 5,000 barrels a day was built in 1929 at Baton Rouge. In the early 1930s at Baytown, Humble left a plant unfinished as the lack of demand for hydrogenated oil did not warrant its completion.⁶⁴

While Standard and its affiliates were researching and developing processes to hydrogenate oil, the Army Air Corps (AAC) was also looking at technology to improve aircraft. In the late 1920s, the AAC showed interest in the development of high-octane aviation gasoline that was necessary for more powerful engines. In 1930, the AAC decided that all combat planes would use 87-octane gasoline and in early 1938, the AAC mandated that all combat aircraft would use 100-octane gasoline. During the mid-1930s, the fledging commercial aircraft industry began to use aviation gasoline and by 1935 purchased two-thirds of the all aviation gasoline produced.⁶⁵

In the late 1920s and early 1930s, Shell Oil, Texaco, Phillips Petroleum, and Standard Oil of New Jersey were all researching production methods of aviation gasoline.⁶⁶ In 1934, following the sale of “1,000 gallons of hydrogenated di-isobutylene” from Shell to the AAC for blending with tetraethyl lead and gasoline to increase the octane rating to 100, Standard of New Jersey undertook construction of facilities at Bayway, NJ and Baytown, TX to produce di-isobutylene. A year later, in June 1935, Standard of Louisiana shipped ten drums of aviation gas from Baton Rouge to Tulsa, OK. Standard of Louisiana then signed a contract with the AAC to supply about 333,000 gallons of 100-octane aviation gasoline to the AAC at \$0.30 per gallon. The AAC planned to purchase this gas over several months, from July through December 1935. By the end of 1935, Standard of Louisiana had sold the AAC 370,513 gallons of 100-octane aviation gasoline.⁶⁷

During mid to late 1930s, Standard of New Jersey, Standard of Louisiana, and Humble continued to research ways to improve and increase the production of high-octane aviation gasoline. In 1938, workers completed construction of copolymer facilities at both Baton Rouge and Baytown. At the same time, at Baytown, Humble’s staff developed the alkylation process for manufacturing iso-octane. Humble began commercial production of alkylate at Baytown in 1938 and alkylate production started at Baton Rouge within two years. As Standard of

⁶⁴ Larson, Knowlton, and Popple, New Horizons, MIS-00023443-930, at MIS-00023529-33.

⁶⁵ J. Doolittle, I Could Never Be So Lucky Again (New York, 1991), pp. 172-173; and Larson, Knowlton, and Popple, New Horizons, MIS-00023443-930, at MIS-00023535.

⁶⁶ In the early 1930s, Shell, Standard, Texaco, and Phillips hired individuals to promote their aviation gasoline by appearing at air shows around the country. Shell hired James Doolittle, who led “Doolittle’s Raiders” in the first U.S. bombardment of Japan in World War II. Standard hired Eddie Aldrin, whose son Buzz became the second American to walk on the moon. See Doolittle, I Could Never Be So Lucky Again, pp. 151 and 172-73.

⁶⁷ Larson, Knowlton, and Popple, New Horizons, MIS-00023443-930, at MIS-00023535.

Louisiana's engineers solved problems concerning production of high-octane gasoline, they encountered a supply problem for high-quality base stock. The problem was resolved to some degree in 1937 when a high-pressure catalytic hydrogenation plant went on line at Baton Rouge.⁶⁸ The author of a publication prepared in 1943 for an inspection of the Baton Rouge by representatives of several agencies noted:

[t]he Standard Oil Company of Louisiana is going forward with a large war production program, but it is perhaps more important that it has pioneered for the oil industry a very large portion of the processes and designs which are now the backbone of the industry's war effort.⁶⁹

The publication listed three major contributions that Standard of Louisiana made that proved invaluable during the war. First was the location in 1927 of the primary research laboratory of the Standard Oil Development Company at Baton Rouge. Second was the establishment in the 1930s at Baton Rouge of the "oil-chemical industry" that laid the foundation for "economical and technical developments that came to the forefront during the war. Third was "the actual construction or beginning of construction of several large commercial units" that became "the backbone of . . . [the] war effort."⁷⁰ It was this type of expertise that federal officials drew on during World War II.

H. Aviation Gasoline and Synthetic Rubber Production During World War II

The cooperation between the various Federal agencies and the petroleum industry in World War II contributed to unprecedented production of aviation gasoline and other petroleum products. The authors of the history of the PAW wrote,

[t]hose in the PAW readily concede that without the wholehearted support of industry, and an effective mechanism for industrial cooperation, the petroleum war program—upon which all other military and essential civilian activities had to depend—could never have succeeded as it did.⁷¹

⁶⁸ Larson, Knowlton, and Popple, New Horizons, MIS-00023443-930, at MIS-00023535-37. As Larson, Knowlton, and Popple note, Standard of New Jersey also built an alkylation plant in Aruba in the late 1930s. Shipment from the Aruba plant would not violate existing United States neutrality laws. The source for the last two sentences of this paragraph is page 166, which plaintiff did not scan.

⁶⁹ B. Brown, Major War Projects, Baton Rouge Refinery, Standard Oil Company of Louisiana, Prepared for War Agencies Joint Inspection Trip, 5/30-31/1943, BRC-00011607-40, at BRC-00011613.

⁷⁰ B. Brown, Major War Projects, Baton Rouge Refinery, Standard Oil Company of Louisiana, Prepared for War Agencies Joint Inspection Trip, 5/30-31/1943, BRC-00011607-40, at BRC-00011613.

⁷¹ Frey and Ide, A History of the Petroleum Administration for War, MIS-00022327-854, at MIS-00022406.

That cooperation and the production made possible contributed significantly to the Allied victory. By 1945, refineries were producing 514,000 barrels of 100-octane gasoline a day compared to 40,000 barrels in 1941.⁷²

The United States' traditional source of natural rubber was Southeast Asia. The Japanese expansion into Southeast Asia in the 1930s threatened the United States' source of rubber. Following Pearl Harbor and the Japanese takeover of much of Southeast Asia the United States' supply of natural rubber was cutoff. However, research into synthetic rubber production had started in the 1930s when Standard of New Jersey and its affiliates actively researched the feasibility of synthetic rubber production. The success of that research led to a meeting in early 1939 between representatives of the Standard Oil Development Company and members of the Army and Navy Munitions Board. At the meeting, company officials made presentations on several types of synthetic rubber.⁷³

During World War II, refining equipment and raw materials necessary for aviation gasoline production could also be used for the production of synthetic rubber. The PAW oversaw the petroleum requirement for the synthetic rubber program and the Rubber Reserve Company financed construction of synthetic rubber plants in the United States. Overall, the petroleum industry produced about 865,000 tons of synthetic rubber yearly during the war.⁷⁴

I. The Korean War Era and Aviation Gasoline

The basic story of Korea is relatively familiar. In June 1950, North Korean troops crossed the demilitarized zone near the 38th parallel and invaded South Korea. In September, when the North Koreans had nearly pushed the South Korean troops off the peninsula, the United States led a United Nations sponsored landing at Inchon on the west coast of the peninsula. American troops pushed the North Koreans back over the demilitarized zone. As the battle approached the Yalu River in December 1950, Chinese troops entered the fight. Soon a stalemate developed close to the 38th parallel that lasted until July 1953.

Although a large-scale demobilization of the American military occurred after World War II ended, and some industrial capacity for military production had been dismantled, the country was better prepared for a war in 1950 than it had been in 1940. After a period of economic readjustment in the years immediately after World War II, the country's economy was strong by the end of the 1940s and into the 1950s. For example, whereas unemployment in 1940 was 14.6%, in 1950 the unemployment rate was down to 5.3%.⁷⁵ The attitude of much of the

⁷² Frey and Ide, A History of the Petroleum Administration for War, MIS-00022327-854, at MIS-00022561. From September 1942 through June 1945, the PAW issued monthly production reports. Data from the reports for Baytown and Baton Rouge are in appendices 3.1 and 3.2 of this report.

⁷³ Larson, Knowlton, and Popple, New Horizons, pp. 166-75.

⁷⁴ Frey and Ide, A History of the Petroleum Administration for War, MIS-00022327-854, at MIS-00022593-96.

⁷⁵ United States Census Bureau, Labor Force (Series D 1-682), Series D 85-86, "Unemployment: 1890 to 1970," p 135. This report is available at, <http://www2.census.gov/prod2/statcomp/documents/CT1970p1-05.pdf>.

country's political leadership had also changed as demonstrated, for example, by the announcement of the Truman Doctrine in 1947, reestablishment of the draft in June 1948, and the Senate's ratification of the treaty in April 1949 that established the North American Treaty Organization (NATO). A specific acknowledgement of the importance of petroleum to modern warfare occurred in 1947 when the Military Advisory Petroleum Board came into existence.⁷⁶

The country would not face a rubber shortage in the late forties, or during Korea, as it did early in World War II. Even before World War II ended, Congress recognized the importance of strategic materials and took steps to ensure that the nation would maintain an adequate supply of such materials. Congress added natural and synthetic rubber to the list of strategic materials in 1947. As part of that effort, Rubber Reserve became the Office of Synthetic Rubber. It oversaw the stockpiling of synthetic rubber. Congress originally intended that the stockpiling effort would last for two years. However, as the Cold War intensified in the late 1940s, and after the North Korean invasion of South Korea in June 1950, stockpiling continued. In August 1953, with the Korean War winding down, Congress established the Rubber Producing Facilities Disposal Commission charged with disposal of government-owned rubber plants.⁷⁷

The Federal Government again took steps to transfer risk associated with increased military production away from private enterprise during the Korean War. Because the country was in better shape economically, there was less need for economic enticements. There was, for example, neither a program similar to the Defense Plant Corporation during the Korean War, nor a program analogous to the DSC's purchase of 100-octane aviation gasoline. There were, however, necessity certificates allowing for accelerated depreciation and low-interest loans. Although jet power aircraft were used during the Korean War, high-octane aviation gasoline became important during the war for propeller driven aircraft. Congress also extended the synthetic rubber stockpile program during the Korean War and production of synthetic rubber continued at Baytown and Baton Rouge.

J. Defense Production Act of 1950 and the Petroleum Administration for Defense

On September 8, 1950, in response to events on the Korean Peninsula, Congress passed the Defense Production Act of 1950.⁷⁸ The act gave the President powers similar to those that Congress gave the executive branch before and during World War II. The titles of each section are indicative of that authority:

Title I. Priorities and allocations.

Title II. Authority to requisition.

⁷⁶ In a March 1947 speech to Congress, President Truman announced that the United States would provide aid to Greece and Turkey who at the time were threatened by civil war and communist aggression. The idea of providing aid became known as the Truman Doctrine and became the cornerstone of the country's containment policy to check Soviet expansion.

⁷⁷ 67 Stat. 408, 8/7/1953.

⁷⁸ 64 Stat. 798, 9/8/1950.

Title III. Expansion of productive capacity and supply.

Title IV. Price and wage stabilization.

Title V. Settlement of labor disputes.

Title VI. Control of consumer credit and real estate credit.

Title VII. General provisions.⁷⁹

The next day President Truman issued Executive Order 10161, delegating to the Secretary of the Interior power given to the President under Title I of the Defense Production Act with “respect to petroleum, gas, solid fuels, and electric power.”⁸⁰

When Congress passed the Defense Production Act, a shortage of aviation gasoline already existed and it worsened in subsequent months. The shortage resulted from a lack of production aviation gasoline to meet commercial demand and military needs, both domestically and abroad, especially for the “higher octane military grade fuels” needed in Korea.⁸¹ In response to the shortage, Secretary of the Interior Oscar Chapman created the Petroleum Administration for Defense (PAD) on October 3, 1950, when he issued Secretarial Order 2591. Just as many individuals from the oil industry staffed the PAW during World War II, during the Korean War many individuals from the oil industry helped staff the PAD. Secretary of the Interior Chapman was the PDA administrator. Bruce Brown, at the time president of Pan-Am Southern Corporation (a subsidiary of Standard Oil of Indiana), became deputy administrator of the PAD.⁸² Despite the shortages in the fall of 1950, the commercial sale of aviation gasoline continued during the Korean War, as did sales to foreign governments.⁸³

⁷⁹ 64 Stat. 798, 9/8/1950.

⁸⁰ Executive Order 10161, 9/12/1950, pp. 6105-08.

⁸¹ J. E. Warren, Deputy Administrator Petroleum Industry for Defense, Report to the Secretary of the Interior and Petroleum Administration for Defense on PAD Order No. 6 Commencing April 30, 1952 and Ending June 3, 1952, MISC-00005337-50.

⁸² A. Kuhl, History of PAD, MISC-00005159-219, at MISC-00005164, MISC-00005167, and MISC-00005172-4. Douglas McKay replaced Chapman in 1953 and J. Ed Warren replaced Brown in May 1951. Brown had worked for the PAW in World War II. In 1965, Brown authored, Oil Men in Washington, An Informal Account of the Organization and Activities of the Petroleum Administration for Defense During the Korean War, 1950-1952 (Evanil Press, 1965), MISC-00015434-804. Secretarial Order 2591 is in Appendix A of Brown’s book (MISC-00015738-40). Appendix B of the books lists technical and executive personnel of the PAD including those from the oil industry (MISC-00015742-804). Despite the shortages in the fall of 1950, production and the commercial sale of aviation gasoline continued during the Korean War.

⁸³ The Petroleum Administration reports on aviation gasoline production provide information on commercial sales, see Tables 2.6 and 3.3 for source citations. For a discussion of sales from Eastern States Standard Oil to foreign governments see, C. Davis to G. Clum, 9/7/1951, US-GEN002518 and B. Brown to G. Clum, 9/19/1951, US-GEN002519.

Soon after its creation, the PAD contacted representatives of the petroleum industry to ascertain production capacity for high-octane gasoline. Standard of New Jersey responded on October 11, 1950, and said “we are glad to give assurance that every possibility for increasing the supplies of aviation gasolines of 100/130 octane or higher as well as components thereof is being actively investigated.”⁸⁴ The PAD issued 6 directives and orders to manage the production and use of petroleum products, 4 of which applied to aviation gasoline. However, the 4 orders directly applied to all aviation gasoline, not just aviation gasoline used by the military.⁸⁵

PAD Order No. 1 became effective on March 1, 1951. Order No. 1 limited the use of automotive tetraethyl lead fluid in automobile gasoline to increase its availability for use in aviation gasoline. Under the order, a “base allotment” and “base period” were established. The base period was 1950 and under the base allotment a refiner could use either 1 million pounds of automotive tetraethyl lead fluid or the amount it had used in the base period, whichever was less. The PAD relaxed the requirements in March 1952 and then abolished the requirement in October 1952.⁸⁶

The PAD issued 3 orders pertaining to aviation gasoline in late October 1951. PAD Order No. 3 limited the use of alkylate and other blending agents by non-defense related industries and Order No. 4 established the minimum amount of tetraethyl lead that could be used in commercial in aviation gasoline.⁸⁷ The PAD press release announcing Orders 3 and 4 stated that Bruce Brown attributed the shortage of aviation gasoline to the closing of the Abadan refinery in Iran in June 1952, and increased “[m]ilitary requirements, both domestic and foreign.” Under PAD Order No. 4, refiners had to use at least 4 cubic centimeters of lead in each gallon of gas for “civilian domestic use,” and at least 4.6 cubic centimeters in aviation gasoline for export. Brown stated that increasing lead content would “stretch” the alkylate supply.⁸⁸

The PAD issued Orders No. 5 and No. 6 in response to labor unrest that developed early in 1952 within the CIO Oil Workers Union over wages. Initially, Brown and others thought a strike might occur in early March. However, that was not the case, and at a White House meeting on March 3, 1952, discussions centered on how to avert a strike. The Wage Stabilization Board became involved in attempting to prevent a strike. Those efforts were

⁸⁴ S. Hope to A. Stewart, 10/11/1950, MISC-00014987.

⁸⁵ The 2 orders that did not involve aviation gasoline were Order No. 2 regarding natural gas, see H. Noyes to J. Warren, 2/9/1953, MISC-00005264-66; and Order No. 5 concerning inventories of petroleum products, see PAD Order No. 5, Directive 2 of 5/9/1952, MISC-00005248-64.

⁸⁶ PAD Order No. 1, 2/27/1951, MISC-00005309-12; PAD Order No. 1, as Amended 3/1/1952, MISC-00005299-2301; Revocation of PAD Order No. 1, 10/1/1952, MISC00005298. Also see, B. Brown to Secretary of the Interior and Petroleum Administrator, 2/14/1952, MISC-00005302.

⁸⁷ PAD Order No. 3, 10/19/1952, MISC-00005315-18; and PAD Order No. 4, 10/19/1952, MISC-00005319-21.

⁸⁸ PAD Press Release, 10/19/1951, MISC-00005313-14. Increasing the lead content of gas for domestic use and export would free up alkylate for aviation gasoline.

unsuccessful and on April 29, members of the Oil Workers Union walked off the job at some refineries.⁸⁹ Although PAD Order No. 5 did not specifically mention aviation gasoline, the order was nonetheless a result of the oil workers strike. Effective May 1, 1952, PAD Order No. 5 placed inventory limits, although the military was exempt.

On May 3, 1952, as a result of labor unrest and refinery shut downs, the PAD issued Order No. 6. PAD Order No. 6 specifically applied to aviation gasoline and became effective on May 6, 1952. Under the terms of the order, it would remain in effect for 28 days. The order defined aviation gasoline as a fuel used in “reciprocating engines for aircraft.” The order limited most customer use to 65% of the amount used in March 1952, excluding any agency of the United States including the Air Force.⁹⁰ The PAD canceled Order No. 6 on June 3, 1952.⁹¹ The Korean War continued for another year until July 1953 when the United Nations, North Korea, and China agreed to an armistice. The PAD was abolished in the spring of 1954.

A part of the background for the refinery strikes in the spring of 1952 was President Truman’s seizure of the steel mills in April 1952. President Truman seized steel mills besieged by labor unrest only to have the Supreme Court overturn his decision in June. The President said that the strike was a threat to national defense, the war in Korea, the work of the Atomic Energy Commission, and the domestic economy.⁹² Although, as noted plant seizures occurred during World War II, they were infrequent and when the Ingleside Refinery was seized in June 1945 the plant remained in operation under Humble direction. However, when workers at numerous oil refineries struck in late April 1952, shutting down approximately 30% of overall refinery production and 40% of aviation gasoline production, President Truman did not instruct the government to seize the refineries.⁹³ Although the president cited the steel strike as a threat to national defense, he evidently did not see the refinery strike as a similar threat. This suggests that the difference between World War II and the Korean War were not just quantitative in terms of aviation gasoline production levels, but also qualitative in the need for the government to insure continuous production. Instead, the PAD believed military aviation gasoline shortages could be addressed through limiting sales to non-military customers.

⁸⁹ Brown, Oil Men in Washington, MISC-00015434-804, at MISC-00015705-10. To date, I have found no evidence that workers at Baytown or Baton Rouge participated in the strike. See, PAD Order No. 5, effective 5/1/1952, MISC-00005248-63

⁹⁰ J. E. Warren, Deputy Administrator Petroleum Industry for Defense, Report to the Secretary of the Interior and Petroleum Administration for Defense on PAD Order No. 6 Commencing April 30, 1952 and Ending June 3, 1952, MISC-00005337-50; and PAD Order No. 6, effective 5/6/1952, MISC-00005351-57.

⁹¹ PAD Order No. 6, revocation 6/3/1952, MISC-00005369.

⁹² Executive Order 10340, 4/8/1952, 17 FR 3139. The U.S. Supreme Court ruled against the President on June 2, 1952, see D. McCullough, Truman (New York: Simon and Schuster Paperbacks, 1992), pp. 900-01.

⁹³ Brown, Oil Men in Washington, MISC-00015434-804, at MISC-00015708-09.

III. The Humble Oil and Refining Company

A. Formation and Expansion

In 1917, officers of the Humble Oil Company and several other companies organized the Humble Oil and Refining Company (Humble) in Texas as its successor.⁹⁴ Cash strapped Humble started discussions with The Standard Oil Company of New Jersey (Standard of New Jersey) in the fall of 1918. The discussions culminated with Standard of New Jersey's purchase of 50% of Humble's stock in January 1919. The agreement solved Humble's cash problems and gave Standard of New Jersey an entrance into the expanding Texas oil industry without violating state anti-trust laws.⁹⁵

Humble expanded quickly in the 1920s. By 1925, the company's main refinery, located in Baytown, Texas, had the capacity to refine more than 30,000 barrels of crude oil a day. Humble operated smaller refineries in Hearne, San Antonio, and Burkburnett, Texas. The company also owned property in Oklahoma, Louisiana, and Arkansas, as well as pipelines, barges, and other property needed for oil exploration, refining, and shipment.⁹⁶ Expansion continued into the early 1930s before contracting in the mid 1930s. According to *Moody's Manual of Investments*, "daily refinery capacity" peaked in 1930 and 1931 at 170,000 barrels a day and then declined through 1933 to 101,500 barrels a day. As of December 31, 1934, daily capacity had increased to 111,500 barrels a day:

the crude capacity of the individual refineries were Baytown, 90,000; Ingleside, 12,000; San Antonio, 4,500; Neches, 5,000; in addition thereto, the cracking capacity of the individual refineries were: Baytown, 60,600; Ingleside, 7,800.⁹⁷

Although capacity fluctuated during the Great Depression, overall it increased during the decade. At the end of 1939, Baytown's capacity was 140,000 barrels for daily crude runs and 90,000 barrels for cracking.⁹⁸ The expansion of the Baytown Refinery during this decade made it the largest refinery in the United States by the end of the 1930s.⁹⁹

⁹⁴ H. M. Larson and K. W. Porter, *History of Humble Oil*, MIS-00023931-24344, at MIS-00023948 and MIS-00023957-59.

⁹⁵ Larson and Porter, *History of Humble Oil*, MIS-00023931-24344, at MIS-00023979-81. Standard of New Jersey continued to buy Humble stock. In 1935, for example, Standard owned 70.5% of Humble's stock. *Moody's Manual of Investments, 1936*, US-GEN003293-3305. That percentage increased slightly during World War II as Standard owned 71.56% as of December 31, 1944. *Moody's Manual of Investments, 1945*, US-GEN003413-3425. In 1959, the new Humble Oil & Refining Company was created in Delaware. The company purchased all of the old Humble's shares and stock. Standard of New Jersey owned all of the stock of the new Humble Company, *Moody's Industrial Manual, 1960*, US-GEN003603-09.

⁹⁶ *Moody's Industrials, 1925*, US-GEN003215-18.

⁹⁷ *Moody's Manual of Investments, 1935*, US-GEN003283-92.

⁹⁸ *Moody's Industrials, 1940*, US-GEN003347-59. Ingleside's capacity had increased to 25,000 of crude and 20,000 of cracking. Neches stayed at 5,000 of crude. By the end of the decade capacity at San

B. Humble's Early Production of Aviation Gasoline

Part of Humble's Baytown expansion in the 1930s was facilities to produce high-octane aviation gasoline components. In 1935 work on boosting octane ratings began as Humble built a plant to manufacture iso-octane at Baytown. The Standard of Louisiana built the same type of plant at Baton Rouge in 1935. In 1938, Humble built a co-polymer plant at Baytown for the manufacture of di-isobutylene mirroring efforts at Baton Rouge where Standard of Louisiana built one. Standard of Louisiana hydrogenated the iso-octane and di-isobutylene produced at Baytown. Finally, in 1938, Humble built the first alkylation plant for iso-octane production at Baytown. Standard of New Jersey made plans to build similar plants at other refineries.¹⁰⁰

Humble had been manufacturing lower octane aviation gasoline for a number of years. At the time of the Army Air Corps' adoption of an octane rating for aviation gasoline, the aviation gasoline that Humble produced at Baytown only had an octane level of 72. In 1935, after several years of research at Baytown, Humble was able to supply Standard of New Jersey with 77-octane aviation gasoline. That year, aviation gasoline production approached 1,500,000 barrels, but, again, it was not high-octane. Humble, however, continued to research the production of higher-octane aviation gasoline. In February 1938, with the completion of a codimer plant and the alkylation plant, Humble was ready to start production of 100-octane aviation gasoline.¹⁰¹ In a 1953 memorandum, Company President Hines Baker wrote:

Humble also pioneered in the commercial development of the alkylation process and started operation of the first commercial alkylation unit at the Baytown refinery in 1938. This process was later adopted by industry and contributed substantially to the manufacture of 100 octane aviation gasoline during World War II.¹⁰²

Production figures for several octanes of aviation gasoline at Baytown from 1937 through 1941 are presented in Table 2.1.

Antonio was also 5,000 of crude. The Neches plant closed in May 1942, while the Ingleside refinery closed in the fall of 1945. Larson and Porter, History of Humble Oil, MIS-00023931-24344, at MIS-00024243 and MIS-00024274. Humble had closed and dismantled the San Antonio refinery by December 31, 1949, *Moody's Industrials, 1951*, US-GEN0003499-502, at US-GEN0003500.

⁹⁹ Larson, Knowlton, and Popple, New Horizons, p. 189.

¹⁰⁰ Larson, Knowlton, and Popple, New Horizons, p. 198. Also see, "Production of War Products at Humble Oil and Refining Company's Baytown Refinery," 2/25/1943, for information on Humble's early research into aviation gasoline, BAYHIS-00004258-68.

¹⁰¹ Larson and Porter, History of Humble Oil, MIS-00023931-24344, at MIS-00024238-40.

¹⁰² H. Baker to Rubber Producing Facilities Disposal Commission, 5/7/1954, US-GEN000021-24.

Table 2.1

Daily Average Shipments of Aviation Gasoline and Components from Baytown, 1937-1942

	Average Barrels Per Day ¹⁰³					
Finished Aviation Gasoline Types	1937	1938	1939	1940	1941	1942
100-Octane Aviation	248	405	727	777	4,142	9,479
91- 95- Octane Aviation	39	49	125	190	185	2,356
90-Octane & Lower Aviation	4,465	4,004	2,832	1,971	1,998	2,261
Total Finished Aviation Gasoline	4,752	4,458	3,684	2,938	6,325	14,098

The data in Table 2.1 shows a trend toward higher-octane aviation gasoline shipments and therefore production between 1937 and 1942. Whereas in 1937 and 1938 nearly all of the Baytown shipments of aviation gasoline were 90-octane, by 1942 shipments of 100-octane were more than 4 times that of 90-octane gasoline. Humble's research into high-octane aviation gasoline and the resulting production placed the company in an advantageous position in the early 1940s as the international situation further deteriorated and when the DSC started to query the petroleum industry about high-octane aviation capacity and potential production.

C. Humble Oil and Refining Company's DSC Aviation Gasoline Contract

On July 26, 1941, Hines Baker responded to the OPC's July 21 telegram that asked the oil industry for information on aviation gasoline. At the Baytown Refinery, Hines reported, average daily charging capacity was between 150,000 and 160,000 barrels a day and daily cracking capacity was 90,000 to 100,000 barrels a day. After telling the OPC that aviation gasoline required base stocks containing naphthas and blending agents, Baker provided daily production figures for the Baytown refinery for base stocks and blending agents. At the time, Humble was producing almost 5,000 barrels of 100-octane aviation gasoline a day and was selling excess blending agents to other companies. Humble processed gasoline leftover from aviation gasoline production into a number of grades of leaded or unleaded gasolines. Baker also reported that Humble produced and sold 900 barrels of copolymer a day to Standard of Louisiana. He concluded by saying that for the second half of 1941, Humble had government contracts for 554,948 barrels of aviation gasoline with 100-octane gasoline accounting for 473,519 barrels. Humble would store 214,286 barrels of 100-octane gasoline for the Army.¹⁰⁴

¹⁰³ "Production of War Products at Humble Oil and Refining Company's Baytown Refinery," 2/25/1943, BAYHIS-00004258-70.

¹⁰⁴ H. Baker to W. Gary, 7/26/1941, MAA_EM-000750-54.

In the fall of 1941, Humble and OPC officials began discussing a 100-octane aviation gasoline contract. On November 19, Humble made a proposal to the OPC for an aviation gasoline contract. At the time of Humble's proposal, the company was already taking steps to expand production of aviation gasoline. Based on the conversations held on November 19 with the OPC, on December 2, Humble sent the OPC proposals for project ratings for the necessary material to build an alkylation unit at Ingleside, expand the alkylation unit at Baytown, construct a fractioning unit at Baytown, and for several other Baytown projects.¹⁰⁵

According to Baker, the OPC rejected the company's November 19, 1941, contract proposal because it "tied the business for certain named air fields and depots to Humble." In response, Humble submitted a revised proposal on January 5, 1942.¹⁰⁶ At the time, Humble only sold directly to consumers in Texas. Humble sold any surplus to Standard of New Jersey for resale. Among Humble's Texas customers were the City of Ft. Worth, North American Aviation, Braniff Airways, and Pan American Airways. There were also sales for service stations.¹⁰⁷ The DSC and Humble continued negotiations and signed a contract on February 4, 1942.¹⁰⁸

Under this contract, Humble's expansion effort was discussed including the payment of bonuses to expedite completion. The government agreed "to pay Standard the amount by which the actual construction [would cost] including such bonus payments exceeds whichever is the greater of (a) the actual cost of construction excluding all bonus payments, and (b) Fifty Million Dollars (\$50,000,000)."¹⁰⁹ Part II of the contract contained language that addressed Humble's concern about continuing its sales of 100-octane aviation gasoline within the state of Texas. In lieu of Humble selling directly to its Texas customers, the DSC agreed to "buy and receive such quantity of 100 octane aviation gasoline as Buyer may require from Seller for interstate delivery in the State of Texas and for occasional interstate deliveries outside of the State of Texas."¹¹⁰

¹⁰⁵ H. Baker to W. Gary, 11/19/1941, MAA_EM-000745-49; H. Baker to W. Gary, 12/2/1941, MAA_EM-001485-86. Baker included an application for project ratings for the following projects at Baytown: naphtha fractionating unit (MAA_EM-001487-92); expansion of alkylation plant (MAA_EM-0001493-97); a steam generating unit (MAA_EM-001498-503); a 5000 kw turbo-generator (MAA_EM-001504-09); and a propane dewaxing plant (MAA_EM-001510-16).

¹⁰⁶ H. Baker to W. Gary, 1/5/1942, MAA_EM-000728-43.

¹⁰⁷ H. Baker W. Gary, 1/7/1942, MAA_EM-003789-94.

¹⁰⁸ G. Stoner to B. Brown, 1/31/1942, MAA_EM-000725-26; and W. Gary to H. Hines, 2/4/1942, MAA_EM-003815-16.

¹⁰⁹ Contract between Defense Supplies Corporation and Humble Oil & Refining Company, 100-Octane Aviation Gasoline as of February 4, 1942, BAYHIS-00000585-602. For a list of projects at Baytown for aviation gasoline production and other purposes see, F. Rathjen to G. Parkhurst, 8/12/1943, MAA_EM-000473-74.

¹¹⁰ Contract between Defense Supplies Corporation and Humble Oil & Refining Company, 100-Octane Aviation Gasoline as of February 4, 1942, BAYHIS-00000585-602.

Part IV outlined prices and payments. From the beginning date of the contract through February 1944, the price would be \$0.13 per gallon. From March 1, 1944 through February 28, 1946, the price would be \$0.12 per gallon. There also were provisions to lower the cost when purchases exceeded 40.5 million barrels. Part V addressed price escalation and the relationship of the cost of 100-octane aviation gasoline to posted crude prices. Changes in posted crude prices would trigger changes in the cost of the aviation gasoline. Humble and the DSC based the cost of 100-octane aviation gasoline on the “normal method of transporting petroleum raw materials to the refinery. . .” The contract contained language that addressed the possibility that changes caused by wartime conditions could affect the domestic market for motor fuels and other petroleum products. If such unforeseen changes occurred, the price of 100-octane gasoline would be reviewed and if necessary an arbitration hearing convened.¹¹¹

In Section IX were the delivery and inspection terms. Under the terms of Section IX, Humble had “full and unencumbered title to all gasoline delivered under this contract . . . title . . . shall pass from seller to buyer upon delivery of the gasoline at point of manufacture.” Most of the inspection terms concerned quantity and quality and required Humble to furnish inspection certificates regarding the quantity and quality of gasoline being shipped. Section XII contained various tax clauses.¹¹² Humble continued to produce for the non-military market and estimated that in 1942, 31.1% of output was for war products, of which 15.2% was 100-octane aviation gasoline or components. The company did state that, in fact, nearly 100% of its production was for war products although byproducts included “motor gasoline, kerosene, heating oil, and residual fuel oil.”¹¹³

D. Humble’s Production of Petroleum-Based Toluene

In September 1943, at what turned out to be about the midpoint of the war, Standard of New Jersey published *18 Dates with Destiny* providing a chronology of the company’s development of toluene produced from petroleum. After referencing the shortage of toluene in World War I, the brochure noted that such a shortage did not exist in the current war because Standard of New Jersey had discovered a “short cut” in its laboratories.¹¹⁴ The author(s) of the brochure noted that in 1927, Standard had purchased certain rights from I. G. Farben for the process for the hydrogenation of petroleum. In 1933, Standard of New Jersey told the War Department it had successfully produced toluene in laboratory tests. During the mid-1930s,

¹¹¹ Contract between Defense Supplies Corporation and Humble Oil & Refining Company, 100-Octane Aviation Gasoline as of February 4, 1942, BAYHIS-00000585-602.

¹¹² Contract between Defense Supplies Corporation and Humble Oil & Refining Company, 100-Octane Aviation Gasoline as of February 4, 1942, BAYHIS-00000585-602.

¹¹³ No author, 2/25/1943, “Production of War Products at Humble Oil & Refining Company’s Baytown Refinery,” BAYHIS-00004258-70. From September 1942 through June 1945, the PAW published information on refinery output. Information for products produced at Baytown is in Appendix 3.1.

¹¹⁴ Standard Oil, *18 Dates with Destiny*, US-BT012705-13, at US-BT012708. Toluol and toluene are synonyms and both words appear in the documents. Toluene will be used in this report unless toluol appears in a quote.

research and testing continued, although the price of toluene produced from oil remained higher than toluene manufactured from coal.¹¹⁵

Research into the manufacture of toluene from petroleum was also occurring at Baytown. In 1938, Baytown researchers had developed a process to produce nitration-grade toluene from naphthas. That work coupled with work done at Standard of New Jersey resulted in a commercially viable toluene of sufficient quality for use in trinitrotoluene (TNT). This early production of toluene involved several plants as no one plant had all of the required equipment. Standard of New Jersey shipped fractions from Baytown to Bayway, NJ for processing. From Bayway, Standard shipped the semi-finished product to Baton Rouge where the toluene was produced. The successful production of petroleum-based toluene required a fully integrated plant. In May 1940, Humble and the Standard Oil Development Company along with several construction companies started to make plans for a large scale plant. They selected the Baytown Refinery because of its proximity to “large quantities of naphthas” and submitted a proposal for what became the Baytown Ordnance Works in August 1940.¹¹⁶

By the time the Baytown Refinery had been selected Standard of New Jersey had already notified Major J. P. Harris of Army Ordnance that the company could build a plant with the capacity to manufacture 2,500 barrels a day of toluene at a cost of \$10 million. Such a plant could be built in a year. After successful large-scale testing, the Army “authorized. . . Humble Oil and Refining Company, to build and operate for the Army” a toluene plant using the process that Standard had developed.¹¹⁷

E. Baytown Ordnance Works

On October 21, 1940, representatives of the Army and the President of Humble signed a multifaceted contract. Army Ordnance Contract W-ORD-480—“Emergency Plant Facilities and Cost-Plus-A-Fixed Fee Construction, Equipment, and Operation Contract”—was for the production of toluene at Humble’s Baytown refinery. The entire contract underscores the relationship between the government, in this case the Army, and Humble during World War II. The entire contract had 7 parts or “titles.” Title VI of the contract contained an Emergency Plant Facilities (EPF) Contract that covered the expansion of Humble’s Baytown and Ingleside plants. Most of the EPF plant expansion occurred at Baytown and was necessary for Humble to process toluene.¹¹⁸ The 7 parts or “titles” of Contract W-ORD-480 and the appendix were:

Title I

¹¹⁵ Standard Oil, *18 Dates with Destiny*, US-BT012705-13, at US-BT012708.

¹¹⁶ Larson and Porter, History of Humble Oil, MIS-00023931-24344, at MIS-00024242 and MIS-00024258-59.

¹¹⁷ Standard Oil, *18 Dates with Destiny*, US-BT012705-13, at US-BT012708.

¹¹⁸ Emergency Plant Facilities and Cost-Plus-A-Fixed Fee Construction, Equipment, and Operation Contract, 10/21/1940, US-BT010074-129 (hereafter BOW Contract). Also see, “Brief Synopsis, Humble Oil and Refining Company Agreement, United States of America,” US-BT010130-48.

Acquisition of Site

Title II

Engineering, Design, Construction and Equipping of the Plant

Title III

Operation

Title IV

Cost of the Work

Title V

Termination

Title VI

Emergency Plant Facilities

Title VII

General

Appendix A

Under Title I, Humble was to sell approximately 50 acres of land near the Baytown refinery to the United States. The contract included provisions for the land after production had ended. At that time, Humble would either buy back the land at the price for which it was purchased or the land would be sold to a third party.¹¹⁹

The “Statement of Work” under Title II-A read:

The Contractor shall, in the shortest reasonable time, furnish the labor, materials, tools, machinery, equipment, facilities, supplies not furnished by the Government, and services, and do all things necessary for completion of the following work . . . [including] preparation of drawing, plans, specifications and field engineering and supervision necessary for the efficient execution and coordination of the work provided for under this title . . . [c]onstruct and equip on said site. . . for the manufacture of toluol having a rated capacity of two thousand (2,000) barrels per day”.¹²⁰

The government also pledged to assist Humble in obtaining the necessary material to construct the plant. Article II-A.2 addressed the responsibilities of the contracting officer and noted he was to supervise the “work and services” of the contractor.¹²¹ Although the contract language called

¹¹⁹ BOW Contract, US-BT010074-129, at US-BT010076.

¹²⁰ BOW Contract, US-BT010074-129, at US-BT010077.

¹²¹ BOW Contract, US-BT010074-129, at US-BT010077.

for the contracting officer to be in charge, the War Department relied on Humble's expertise for the construction of the plant. As discussed below, the War Department also relied on the Humble for the management of the plant once production started.

Article II-D defined the contractor's authority as including "to do all things necessary or convenient in and about the construction and equipment of the plant . . ." and the hiring and firing of employees and subcontractors.¹²²

Title III of the contract articulated Humble's responsibilities for management of the plant. Under subtitle III-A 1, Humble was to organize, plan, and prepare "for the operation of the plant." Those activities included operating the pilot plant, "training key men," and "setting up an efficient and going operating force." According to subtitle III-A 2, after the completion of the plant Humble was to act "as an independent contractor, [and] proceed to operate it for the production of toluol." Although the contract was for 1 year, if production beyond 1 year became necessary the terms for the 2nd year would mirror the initial terms. Operation beyond 2 years would be "under such terms and provisions as may be mutually agreed upon."¹²³

Under the terms of the contract, Humble would produce 30 million gallons of toluene per month. The toluene needed to meet Army specification 50-11-38A dated February 23, 1932. Toluene that did not meet the Army's specification could "be re-treated" when possible.¹²⁴

Title III-D stated Humble's authority to do "all things necessary or convenient in and about the maintenance, operation, [and] alteration" of the plant excluding "major extensions of or additions to the Plant." The Army and Humble assumed that Humble's production of the necessary crude run stocks at Baytown and Ingleside, at the time they signed the contract, would be sufficient to produce the amount of toluene called for in the contract.¹²⁵

Title III-E noted that "(a) The contractor is the manufacturer of or a regular dealer in the materials, supplies, articles, or equipment to be manufactured or used in the performance of the contract." Provisions for minimum pay, maximum hours, and other personnel issues were also included in this section of the contract.¹²⁶

Title V covered the Army's payment obligations. Under the contract, the Army would pay for all approved expenses, raw materials, several subcontractors, rent to Humble for any company-owned tools used for plant construction, loading and unloading at the site, and the

¹²² BOW Contract, US-BT010074-129, at US-BT010078. The contracting officer could require the dismissal of a worker considered "incompetent," or whose continued employment would be contrary to "the public interest." Humble could appeal such dismissals.

¹²³ BOW Contract, US-BT010074-129, at US-BT010081.

¹²⁴ BOW Contract, US-BT010074-129, at US-BT010081.

¹²⁵ BOW Contract, US-BT010074-129, at US-BT010082-83.

¹²⁶ BOW Contract, US-BT010074-129, at US-BT010084-85.

shipment of “materials, supplies and equipment.” Additionally, the Army would pay certain travel expenses and the salaries of some Humble employees. The Army also agreed to pay Humble’s Social Security contributions “and any applicable State or local taxes, fees, or charges . . . if approved in writing in advance by the Contracting Officer” and company paid benefits.¹²⁷

Both parties’ termination rights and responsibilities were outlined in Title V.¹²⁸

Title VI of the contract W-ORD-480 covered the EPF contract for Baytown and Ingleside. In operating the plant for toluene production, it would be necessary for Humble to “return to the refinery all liquid and gaseous by-products arising in connection with and after manufacturing toluol . . . [which] requires the construction and use of the Plant site and within the Baytown and Ingleside . . . certain additional facilities hereinafter referred to as Emergency Plant Facilities.” Humble undertook construction of the EPF “[i]n consideration of the covenants of the government” in Contract W-ORD-480.¹²⁹ Humble agreed to prepare plans for the EPF and under provisions of the general EPF program would hold title to the EPF. Title VI-G outlined the 60-month repayment schedule that the government would make to Humble in accordance with the standard EPF program.¹³⁰

Title VI-H concerned disposition of the EPF upon completion or termination of the contract. After a 90-day notice period, Humble retained the right to purchase the plant based on certification of the final cost. An estimation of the final cost of the plant would take into consideration insurance costs, depreciation, obsolescence and loss of value because of wartime use.¹³¹ Humble thus retained the right to purchase the plant after the war at a price likely below what the Army paid for its construction.

Initially, the annual rate of depreciation and obsolescence was set at 15%.¹³² This rate of depreciation effectively meant that after 6 years Humble would receive the plant at no cost. However, in a supplemental contract signed in November 1940, Humble agreed to lower the combined depreciation and obsolescence rate to 10% annually.¹³³

¹²⁷ BOW Contract, US-BT010074-129, at US-BT010087-89.

¹²⁸ BOW Contract, US-BT010074-129, at US-BT010097.

¹²⁹ BOW Contract, US-BT010074-129, at US-BT010099.

¹³⁰ BOW Contract, US-BT010074-129, at US-BT010100-105.

¹³¹ BOW Contract, US-BT010074-129, at US-BT010105-106.

¹³² BOW Contract, US-BT010074-129 Appendix A, US-BT010129.

¹³³ Supplement to Emergency Plant Facilities Contract and Cost-Plus-A-Fixed-Fee Construction, Equipment, and Operation Contract, Contract No. W-ORD-480-Supp.1. This contract is included in documents associated with Humble’s application for a Necessity Certificate in the autumn of 1940, US-BT000532-64, at US-BT000560-64.

Title VII, “General” was a catchall of remaining contract terms. In Title VII, it was stated that the government held title to all work product except the naphtha supplies and byproducts. Humble was responsible for keeping accounting records but the government retained the right to review the records to verify costs.¹³⁴

Within a few months of signing W-ORD-480, the Army was responding to questions regarding when the plant would start production. In February 1941, the Army told the chief of the Wilmington Ordnance Region that initial production at the Baytown Ordnance Works would start around August 21, 1941, and the plant would obtain full production 6 weeks later.¹³⁵ By July and August 1941, officials recognized that even when the plant began production, a toluene shortage would remain. Therefore, the Army asked Humble to search for ways to increase toluene output.¹³⁶ This is something that Humble did throughout the war. However, Humble initially responded to the Army’s request by explaining that toluene production was a 3-step process and increased production required corresponding increases in each of the 3 steps. Nevertheless, even before production had started, company officials believed that Humble could produce an additional 20% from the existing plant facilities.¹³⁷ Toluene remained in short supply throughout the war as the need for explosives continued to increase and the use of toluene for aviation gasoline production exacerbated the shortage.

Given the ongoing shortage during the war, therefore, Humble continued to search for ways to increase toluene production. Humble communicated and negotiated with other companies, kept the Army apprised of production at the Baytown Ordnance Works, and provided the Army with technical information and research updates. Humble Vice President Hines Baker often corresponded with J. P. Harris in the Office of the Chief of Ordnance. In February 1942, for example, Baker wrote Harris regarding a possible Humble purchase of a toluene component from Shell Oil. Successful testing with this component could result in higher yields of toluene. Two months later, in April, Baker informed Harris of additional Humble research results that, if implemented, would require plant expansion favored by Baker.¹³⁸

In September 1942, Baker wrote Harris and told him of a proposed contract that Humble had negotiated with Continental Oil “covering the purchase of narrow-cut hydroformate fraction for processing at the Baytown Ordnance Works for the manufacture of toluene.” Included in the

¹³⁴ BOW Contract, US-BT010074-129, at US-BT010114-115.

¹³⁵ J. Booton to Chief, Wilmington Ordnance Region, 2/21/1941, US-BT012439.

¹³⁶ J. H. Matkin to J. P. Harris, 7/16/1941, US-BT012416-18; and J. P. Harris to Commanding Officer, Baytown Ordnance Works, 8/25/1941, US-BT012382.

¹³⁷ H. Baker to B. Rife, 9/10/1941, US-BT012377-81.

¹³⁸ H. Baker to J. P. Harris, 2/17/1942, US-BT012175-76; and H. Baker to J. P. Harris, 4/6/1942, US-BT012138-39. Also see, H. Wilde to J. Harris, circa 1/1942, US-BT012190; H. Baker to G. Taber, Jr. 3/13/1942, US-BT012148-53; and H. Baker to J. P. Harris, 3/14/1942, US-BT012169-73. An example of Shell-Humble correspondence regarding toluene components can be found at US-BT012177 (C. Davis to H. Baker, 2/14/1942).

letter was information on cost and increased production.¹³⁹ The following month, Humble furnished the Army with data on the amount of methylcyclohexane and toluene in various kinds of crude oil. Humble also told the Army that under the proper circumstances daily toluene production could reach 4,200 barrels.¹⁴⁰

During Humble's management of the Baytown Ordnance Works, various Army personnel were present at the manufacturing facility. An officer from the Army's Ordnance Office was onsite at Baytown. The available documentation, however, indicates that his primary concern was contract compliance. For example, on March 12, 1942, Major John Murchison, the Ordnance Department's executive officer at Baytown, wrote to the Army Ordnance Office in Washington, D.C. Murchison informed Washington that the amount of toluene reported in recent shipments was incorrect. Murchison wrote a similar letter later in March pointing out that the cost of toluene was incorrectly listed on shipping tickets.¹⁴¹

Onsite Ordnance Department officials also were responsible for the inspection and acceptance of the toluene that Humble manufactured. A "Description Sheet" from January 1942 contained information on a tanker car of toluene is illustrative. Included in the document are the amount of toluene and the results of various chemical tests. The Ordnance Department accepted the toluene on January 21, 1942. Murchison signed the actual "Acceptance Sheet" on January 21, 1942.¹⁴²

The overall cooperative nature of Army Ordnance representatives and Humble officials is illustrated by a problem that plagued the petroleum industry beginning in 1942. At issue was the interconnection of the manufacture of numerous petroleum-based products. Production of one product resulted in increased byproducts of another product, which was something that the Army and Humble took into consideration in the EPF portion of contract W-ORD-480. An associated issue was how to move petroleum products and byproducts from one location to another location. Months before the Baytown Ordnance Works commenced operations, Humble expressed concern to the Army about the lack of tanker cars to transport toluene away from Baytown.¹⁴³ An inability to move products could, and did, affect production. This occurred at Baytown and Ingleside early in 1942. A shortage of tankers resulted in an accumulation of automobile gasoline. That accumulation resulted in Humble having to reduce the crude oil output that was necessary for toluene production, which threatened to cut toluene production

¹³⁹ H. Baker to J. Harris, 9/23/1942, US-BT012055-56.

¹⁴⁰ H. Wilde to Office of Chief of Ordnance, attention J. Matkin, 10/3/1942, US-BT012043-45.

¹⁴¹ J. Murchison to Office of Chief Ordnance, 3/12/1942, US-BT012179-80; and J. Murchison to Office of Chief Ordnance, 3/23/1942, US-BT012159-60.

¹⁴² Baytown Ordnance Works, Station 1364, "Description Sheet," circa 1/1942, US-BT012209; and J. Murchison, "Acceptance Sheet," 1/21/1942, US-BT012207.

¹⁴³ E. Voss to L. H. Campbell, Jr., 1/17/1941, US-BT012203-04.

altogether. Humble outlined steps it was taking to alleviate the situation to the War Department.¹⁴⁴

The War Department discussed the situation with Humble and the parties reviewed several possible solutions. The need to move home heating oil to the east coast, which required the use of tankers that otherwise could have transported automotive gasoline exacerbated the situation. The Chief of Army Ordnance summarized the situation when he told the Under Secretary for War:

Toluene, aviation gasoline and butadiene cannot be produced without the production of large quantities of motor gasoline which must be marketed. In the face of a rapidly declining demand and consumption of motor gasoline and the transportation problem, curtailed crude input to refineries is an unavoidable result.”¹⁴⁵ [emphasis in original]

Although concerned about the shortage of toluene, the Army was pleased with Humble’s work and production at the Baytown Ordnance Works. In late May 1942, the Chief of the Army’s Ammunition Division wrote to the Chief of the Industrial Service and noted that Humble had “established a remarkable record” with toluene production. In praising Humble, General Rose wrote:

The reasons for this [success] are many but the dominating one is the personnel of the contractor. Humble placed the top men of their organization on the Ordnance plant. This applied to all categories of employees: administrative, supervisory, technical, operating, skilled and unskilled. . . Supervisors, operators, machinists, pipefitters, technical personnel, etc. all worked incessantly until the plant was operating smoothly.¹⁴⁶

Later in the war, the Army nominated Humble for an Army “A” Award because of its operation of the ordnance works. The plant also received an Army-Navy “E” award for “Excellence.”¹⁴⁷ Still another letter from the Office of the Chief of Ordnance described Humble’s work at Baytown as “being second to none in the war effort.”¹⁴⁸

¹⁴⁴ H. Baker to J. P. Harris, 2/24/1942, US-BT012192-93.

¹⁴⁵ W. Whitman, “Memorandum of Phone Conversation with Hines Baker of Humble Oil on Toluene Production at Baytown,” 2/24/1942, US-BT012194; and G. Wesson to Under Secretary of War, 2/28/1942, US-BT012186. This situation continued for some time. See for example, J. Murchison to Office of the Chief of Ordnance, 6/19/1942, US-BT012289; H. Baker to L. Campbell, Jr. 8/6/1942, US-BT012244; H. Baker to R. Davies and P. Robinson, 8/6/1942, US-BT012245-47; and H. Baker to R. Davies, 8/6/1942, US-BT012248-49.

¹⁴⁶ J. B. Rose to Chief Industrial Service, 5/26/1942, US-BT012314-16.

¹⁴⁷ Army “A” Award Data Sheet, Humble Oil & Refining Company, US-BT012292-94; and Standard Oil, *18 Dates with Destiny*, US-BT012705-13, at US-BT012713.

¹⁴⁸ J. Matkin to H. A. Friedlich, 11/25/1942, US-BT012332-33.

In October 1943, pursuant to the language in contract W-ORD-480, Humble and the Army extended their agreement for Humble's work at the Baytown Ordnance Works. Initially, the extension was to last through the end of the calendar year, but Humble operated the plant into August 1945.¹⁴⁹ At the time of the extension, several letters discussed the amount of toluene manufactured at Baytown. For the first 2 years that the plant was in operation, Humble produced 104 million gallons of toluene. Of that amount, 64 million gallons had been manufactured during the 2nd year of operation.¹⁵⁰

Despite Humble's efforts in early 1942 to find ways to increase toluene production it remained in short supply during the rest of the war. The War Department and Humble constantly considered ways to increase production. The use of toluene in aviation gasoline production contributed to the shortage and made the situation more difficult to address. In November 1944, T. C. Gerber—of the Office of Army Ordnance—wrote Humble and reported that his office anticipated a toluene shortfall of 2.5 million gallons per month. Gerber thought a new plant might be necessary, but before a decision was made on building another plant every effort needed to be made to increase production from existing plants. Gerber referenced a survey that Humble had started earlier in the year on ways to increase production at Baytown that included additional crude oil shipments from Pan American, Shell, and Sinclair. Gerber did not rule out curtailing toluene use in aviation gasoline production in favor of supplementing the supply for ordnance work.¹⁵¹

The dropping of the atomic bombs in early August effectively ended the war in the Pacific and the Japanese asked for peace on August 10, 1945. With the war essentially over, the Army canceled the toluene contract that it had with Humble and the Baytown Ordnance Works ceased production on August 20. A history of Humble stated that from September 1, 1939, through September 1, 1945, Humble's total toluene production was 5,590,700 barrels. Most of that occurred after the Baytown Ordnance Works began production in the fall of 1941.¹⁵² In 1954, Humble President Hines Baker stated that the Baytown Ordnance Works produced

¹⁴⁹ Change Order No. 24 to Contract No. W-ORD-480 as amended, as of October 21, 1943, US-BT12971-73; and R. Fabian to the Surplus Property Board, 8/23/1945, US-BT000075-76.

¹⁵⁰ See Humble to Office of the Chief of Ordnance, attention P. J. Pickens, 10/26/1943, US-BT012660-65; and H. Baker to Office of the Chief of Ordnance, attention P. J. Pickens, 10/26/1943, US-BT012657-59.

¹⁵¹ T. C. Gerber to H. Baker, 11/29/1944, US-BT012566-67. For additional documents that address the toluene shortage see: M. L. Snyder to the Commanding Officer, Baytown Ordnance Works, 3/1/1945, US-BT012547-49; R. E. Hardy to Commanding General Army Service Forces, 3/14/1945, US-BT012550-53; Humble Oil & Refining Company, 4/4/1945, "Increase in Production of Hydroformed Aromatics by Processing Cracked Naphtha at the Baytown Ordnance Works," US-BT012540-44; H. W. Ferguson to A. P. Frame, 4/11/1945, US-BT012535-39; and G. F. Johnson to Field Director Ammunition Plants, 4/16/1945, US-BT012534.

¹⁵² Larson and Porter, History of Humble Oil, MIS-00023931-24344, at MIS-00024259 and MIS-00024271.

“approximately two-thirds” of the toluene in the TNT that the United States and its allies used during World War II.¹⁵³

While production was winding down at the Baytown Ordnance Works in August 1945, Humble Vice President Hines Baker approached the Ordnance Department about acquiring title to the facility. Since the War Department did not plan to retain the plant after the war, the Ordnance Department favored entering into negotiations with Humble.¹⁵⁴ On August 15, 1945, the Ordnance Department cancelled its lease with Humble and in doing so noted the plant had “exclusively” produced toluene during the war and should be considered a chemical plant and not an aviation gasoline plant. The following week the government declared the plant surplus property.¹⁵⁵

On August 29, 1945, the government and Humble signed a lease for the Baytown Ordnance Works “constructed and installed within Lessee’s Baytown, Texas Refinery pursuant to Title VI of Contract W-ORD-480, as amended, between Lessee and the Government.” Humble agreed to pay \$68,000 a month in rent.¹⁵⁶ The lease became effective at noon on August 31, 1945.¹⁵⁷ During the fall and winter of 1945, Humble and the RFC negotiated terms under which Humble would purchase the plant.¹⁵⁸ Beginning in either 1945 or 1946, Humble started to use the equipment in former ordnance plant to produce solvents and, evidently, other products to “improve gasoline quality.”¹⁵⁹

In 1946, the War Assets Corporation placed the total cost of the plant at \$14,185,866.00. That figured included \$1.6 million for the land, almost \$11 million for “Machinery and Equipment,” \$633,038 for the EPF work, \$339,508 for “Catalysts & Chemicals,” and \$546,255

¹⁵³ H. Baker to Rubber Producing Facilities Disposal Commission, 5/7/1954, US-GEN000021-24.

¹⁵⁴ L. H. Campbell, Jr. to Commanding General, Army Service Forces, 8/8/1945, US-BT012522.

¹⁵⁵ R. Fabian to the Surplus Property Board, 8/23/1945, US-BT000075-76; and M. J. O’Byrne, Memorandum to the Board, 8/28/1945, US-BT000077.

¹⁵⁶ Lease between RFC and Humble, 8/29/1945, US-BT000067-73. Also see, O. Beasley and E. Gesell to O’Byrne, 8/23/1945, US-BT000211-12; and Gesell to O’Byrne, 8/23/1945, US-BT000213-14.

¹⁵⁷ R. Hardy to Production Service Division, 9/28/1945, US-BT012516.

¹⁵⁸ I. Gumble to A. Brown, 11/27/1945, US-BT000083; and H. Baker to F. Berquist, 1/14/1946, US-BT000174-82.

¹⁵⁹ In their history of Humble, Larson and Porter state production resumed within a few days of leasing it in August 1945, Larson and Porter, History of Humble Oil, MIS-00023931-24344, at MIS-00024271. The 1946 Humble Annual Report, however, says that production resumed in 1945, Humble Oil and Refining Company and Subsidiary Companies, Annual Report, 1946, BAYHIS-00026511-29, at BAYHIS-00000026521. The 1945 report indicates that the production had not resumed in the ordnance works, see Humble Oil & Refining Company and Subsidiary Companies, Annual Report, 1945, MIS-00026474-510, at MIS-00026496.

for “Spare Parts & Operating Supplies.”¹⁶⁰ In January 1946, the general contractors Moran and Fenneman made an appraisal of the Baytown Ordnance Works and estimated the depreciated value of the toluene plant at \$7,774,314.42.¹⁶¹ The following month, the Surplus Property Board declared the toluene plant surplus. In doing so, the board noted that initial production occurred on October 21, 1941, and the plant was completed on November 30, 1941. Although designed to produce 2,000 barrels of toluene daily, the plant reached a maximum of 4,600 barrels a day.¹⁶² In May 1946, Humble and the government agreed on sale terms and on May 31, 1946, Humble took possession of the toluene plant and paid the government almost \$7 million.¹⁶³

F. Humble’s Use of Necessity Certificates at Baytown

During World War II, Humble applied for 16 Necessity Certificates and received at least 11 of them. The eleven that Humble received allowed the company to take accelerated depreciation on \$15,571,972.54 of equipment, machinery, and other items. The 5 Necessity Certificate applications lacking documentation to show that Humble received approval for accelerated depreciation had a total value of \$260,200.¹⁶⁴

1. Necessity Certificates to Increase Toluene Production

Humble applied for its first Necessity Certificate on October 19, 1940, just 11 days after Congress passed the Second Revenue Act of 1940 that established the Necessity Certificate program. The application for what became Necessity Certificate WD-N-6 requested accelerated depreciation on company-financed and company-owned equipment needed for toluene production under contract W-ORD-480. The terms of WD-N-6 differed from other Necessity Certificates that authorized a 20% depreciation over a 5-year period. Necessity Certificate WD-N-6 conformed to the provisions of the EPF contract that was part of W-ORD-480 and authorized a depreciation rate of 5% a year and obsolescence of 5% a year for 5 years for a total write-off of 50% after 5 years. The government wanted this change to protect its interest in the plant.¹⁶⁵

¹⁶⁰ War Assets Corporation, 2/14/1946, W-ORD-480, Baytown Ordnance Works (Toluene Plant), Baytown, Texas, Wartime Operator: Humble Oil & Refining Co., US-BR000950-64. The War Assets Corporation was the predecessor agency to the War Assets Administration.

¹⁶¹ H. Fenneman to RFC, attention F. Berquist, 1/15/1946, US-BT000040.

¹⁶² Surplus Property Board, Declaration of Surplus Real Property, 2/6/1946, US-BT000135-148, at US-BT-000136.

¹⁶³ J. Lockett to M. Lewis, 6/1/1946, US-BT000103; also see Real Property Classification and Assignment to Disposal Agency, “Baytown Ordnance Works, W-Texas 73,” 2/6/1946, US-BT000135-48; and F. E. Berquist to Chairman, War Assets Administration, 2/23/1946, US-BT000100.

¹⁶⁴ It is likely that Humble also received approval for these 5 certificates, however, documentation showing the approval date is not extant.

¹⁶⁵ Application for a Necessity Certificate, 10/19/1940, WD-N-6, US-BT000532-64, at US-BT000541.

Humble asked for accelerated depreciation on \$1,097,000 worth of “lines and tanks,” “treaters,” and “utilities” at Baytown and Ingleside. Of that amount, \$864,000 was for Baytown; \$233,000 was for Ingleside; and the remaining \$100,100 for general contingencies. Humble was asking for accelerated depreciation on various pieces of equipment and infrastructure improvements that were necessary to integrate the Baytown Ordnance Works with the Baytown Refinery:

The facilities consist chiefly of oil piping, pumps, and breakdown tanks and are designed to convey oil from the Humble Oil Refining Company’s plant into a Government-owned plant and from the Government-owned plant back to the Humble Oil Refining Company’s plant.¹⁶⁶

The government approved Humble’s request on November 19, 1940, and issued certificate WD-N-6. Ultimately, Humble received accelerated depreciation on \$729,500 of equipment and other items purchased under Necessity Certificate WD-N-6.¹⁶⁷

2. Necessity Certificates Related to Aviation Gasoline Production

On January 12, 1942, Humble applied for what became Necessity Certificate WD-N6419. The application noted that “100 octane aviation gasoline” would be manufactured with facilities for which Humble was requesting the Necessity Certificate.¹⁶⁸ Without the additional facilities, production was 210,000 barrels per month, although some of that production actually occurred elsewhere as Humble shipped the components for blending to other locations. With the new facilities request, capacity would increase to 333,000 barrels per month. The government approved the \$5.6 million application which included money for a “Naphtha Fractioning Unit,” a “5000 KW Turbo-Generator,” “Expansion to Alkylation Plant,” and a “Steam Generating Unit” at Baytown. An unspecified amount of the certificate was for an alkylation plant at Ingleside.¹⁶⁹

On March 31, 1942, Humble applied for a second Necessity Certificate that covered purchases of equipment to increase aviation gasoline production. The War Department approved the application in May 1942, and issued Necessity Certificate WD-N-7462 allowing Humble to receive accelerated depreciation on \$9.8 million worth of equipment. This Necessity Certificate

¹⁶⁶ Application for a Necessity Certificate, 10/19/1940, WD-N-6, US-BT000532-64, at US-BT000545 and US-BT000554-56.

¹⁶⁷ Application for a Necessity Certificate, 10/19/1940, WD-N-6, US-BT000532-64, at US-BT000539. On 11/3/1942, the amount was reduced from \$1,097,000 to \$729,500.31. See, Application for a Necessity Certificate NC 1503, 12/23/1943, US-BT000316-333, at US-BT000325. The application for a Necessity Certificate, 3/31/1945, NC 9390 contains an entry for an unnumbered Necessity Certificate that is only denoted with an asterisk for \$35,000 for “[f]acilities to charge cracked naphtha to B.O.W.” US-BT000507-15, at US-BT000511. No other information exists for this Necessity Certificate.

¹⁶⁸ Application for a Necessity Certificate, 1/12/1942, WD-N6419, US-BT000468-77, at US-BT000469. See Appendix 1.1 for a list of the Necessity Certificates for which Humble applied.

¹⁶⁹ Application for a Necessity Certificate, 1/12/1942, WD-N6419, US-BT000468-77, at US-BT000470, 475-77.

was the most valuable of those that Humble received.¹⁷⁰ At war's end, Humble filed an amendment to WD-N-7462 requesting permission to receive accelerated depreciation on slurry equipment. The government denied the amendment. However, the amendment contained a revised breakdown of the equipment and actual amounts of accelerated depreciation that Humble sought under WD-N-7462. It totaled \$8,437,582. According to the revised numbers, Humble sought accelerated depreciation on \$5,709,265 for a new catalytic cracking unit, \$236,441 for alterations and improvements to an existing catalytic cracking unit, \$1,247,857 for a "light ends recovery unit," \$492,425 for a "gas compression plant," \$433,957 for a cooling tower and water distribution system, and \$317,137 to connect the refinery and "the Defense Plant."¹⁷¹

Between early November 1943 and February 1944, Humble applied for 5 more Necessity Certificates for accelerated depreciation on equipment purchases used for aviation gasoline production. Two of the Necessity Certificates—WD-N-30821 and NC1502—were for purchases to expand production of hydroformed xylenes for C-S blending agent to expand 100-octane supplies.¹⁷² In both applications, Humble said that a rearrangement of existing facilities in the refineries was required so that the company could rework, store, and load xylenes produced at the Baytown Ordnance Works into tank cars for shipment. In the application for Necessity Certificate NC1502, Humble noted, "[a]ll by-products from such toluene production are the property of Humble."¹⁷³ Humble received approval in February and May 1944 for both applications with a total value of \$154,400.¹⁷⁴

Three Necessity Certificates applied for between November 1943 and February 1944 involved equipment for the production of isobutene. All 3 contained a statement that the "end" product would be 100-octane aviation gasoline for the Army, Navy, or engine builders.¹⁷⁵ Necessity Certificate WD-N-30822, filed on November 3, 1943, requested accelerated depreciation on facilities valued at \$78,490. These facilities would increase isobutene

¹⁷⁰ Morgan Angel was unable to locate the original application. This information is drawn from Application for a Necessity Certificate, 3/31/1945, NC 9390, US-BT000507-15, at US-BT000511.

¹⁷¹ Amendment to Application for a Necessity Certificate, 8/27/1945, WD-N-7462, US-BT000433-457, at US-BT000441.

¹⁷² Application for a Necessity Certificate, 11/3/1943, WD-N-30821, US-BT000371-90, at US-BT000372; and Application for a Necessity Certificate, 1/5/1944, NC 1502, US-BT000304-315, at US-BT000305.

¹⁷³ Application for a Necessity Certificate, 11/3/1943, WD-N-30821, US-BT000371-90, at US-BT000373; and Application for a Necessity Certificate, 1/5/1944, NC 1502, US-BT000304-315, at US-BT000306 and US-BT000308.

¹⁷⁴ Application for a Necessity Certificate, 3/31/1945, NC 9390, US-BT000507-15, at US-BT000511.

¹⁷⁵ The reference to the "end" product being 100-octane aviation gasoline is as follows, Application for a Necessity Certificate, 11/3/1943, WD-N-30822, US-BT000391-409, at US-BT000392; Application for a Necessity Certificate, 1/17/1944, NC 1783, US-BT000284-303, at US-BT000285; and Application for a Necessity Certificate, 2/26/1944, NC 3478, US-BT000478-96, at US-BT000479.

production capacity from 110,400 barrels to 164,000 barrels per quarter.¹⁷⁶ Necessity Certificate NC1783, which Humble applied for in January 1944, was for \$122,000 for tanks and other equipment to store and load isobutene for shipment via tank car. The improved facilities would increase industry-wide production of 100-octane aviation gasoline by 6,000 barrels a day.¹⁷⁷ The 3rd Necessity Certificate that Humble requested during this time was also to increase isobutene production. This increase was made necessary by the company starting its second catalyst cracking unit and the installation of additional isomerization equipment. Humble filed the request for Necessity Certificate NC3478 for accelerated depreciation on \$65,000 worth of equipment at the end of February 1944.¹⁷⁸

On January 3, 1945, Humble applied for 2 more Necessity Certificates for equipment used in isobutene production. Each certificate noted that the isobutene would be processed with other materials to increase production of 100-octane aviation gasoline. Certificate NC8226 was for \$30,000 of labor and necessary auxiliary equipment. Necessity Certificate NC8227 was to move existing equipment and install new equipment to increase isobutene production.¹⁷⁹

Altogether, Humble applied for and received approval for 9 Necessity Certificates that, at least partially, covered purchases associated with aviation gasoline production. The 9 Necessity Certificates allowed accelerated depreciation on \$14,522.23 worth of purchases.

3. Humble's Plant-Wide Necessity Certificate

During February 1945, Humble applied for and received Necessity Certificate NC8612. As noted in the application, the facilities would:

[s]upply recirculated fresh water to refinery processing units, including a Catalytic Cracking unit and light ends fractionating units, which manufacture components of 100 octane aviation gasoline, motor gasolines and charge stocks for Government owned toluene and synthetic rubber plants.

The new system would augment an existing system that provided "cooling water for use in cooling and condensing hydrocarbon products manufactured at the units." Humble received accelerated depreciation on \$320,000 worth of equipment.¹⁸⁰

¹⁷⁶ Application for a Necessity Certificate, 11/3/1943, WD-N-30822, US-BT000391-409, at US-BT000396 and US-BT000400.

¹⁷⁷ Application for a Necessity Certificate, 1/17/1944, NC 1783, US-BT000284-303, at US-BT000286.

¹⁷⁸ Application for a Necessity Certificate, 2/26/1944, NC 3478, US-BT000478-96, at US-BT000484 and US-BT000491.

¹⁷⁹ Application for a Necessity Certificate, 1/3/1945, NC 8226, US-BT000222-35, at US-BT000232; and Application for a Necessity Certificate, 1/3/1945, NC 8227, US-BT000236-57, at US-BT000240. The reference to 100-octane aviation gasoline is on the first page of each application.

¹⁸⁰ Application for a Necessity Certificate, 2/17/1945, NC8612, US-BT000497-506, at US-BT000504-506.

4. Necessity Certificates that Humble Likely Received

Humble applied for 4 more Necessity Certificates that it likely received even though they are not listed as approved in later Necessity Certificates. All 4 received a Necessity Certificate number. Three of the applications bear a WPB “Routing & Issuance Branch” date and time stamp. The 4th has a faint date and time stamp and bears the stamp “Official File Copy.”¹⁸¹

The Necessity Certificate application for NC1503 requested approval for accelerated depreciation of \$72,700 worth of work for “reallocating tankage and lines at the Baytown Refinery.” Humble stated that the work was necessary for “[d]elivery through pipe line facilities of heating oil, kerosene, 80 Octane All-Purpose Gasoline and 100 Octane Aviation Gasoline” to the DSC. All of the products would go towards the war effort.¹⁸² Necessity Certificate NC1774 was similar to NC1503 in that it would cover “reallocating storage drums, lines and railroad trackage in the Baytown Refinery so that C-S Blending Agent” could be better moved, stored, and blended for high-octane gasoline. Completion of the work would increase 100-Octane capacity from 1.9 million to 2.28 million barrels per quarter. Humble requested approval to amortize \$24,700.¹⁸³

The 3rd Necessity Certificate involving aviation gasoline production that Humble applied for was NC1511. The company applied for the certificate in January 1944. The certificate was to cover the cost of converting existing facilities for use in conjunction with the hydrogenation plant for the production of hydro-polymers and aviation gasoline components. Upon completion of the work, other facilities at Baytown would be available for use with Plancor 1909.¹⁸⁴

The final Necessity Certificate for which Humble likely received approval was NC9390. It sought accelerated depreciation on \$94,000 of “manufacturing facilities.” Humble would use the facilities to treat “heavy catalytic naphtha.” In the application Humble said, “[t]he facilities will be installed as an integral part of one of Humble’s privately owned refinery operating units . . . it is understood that the Government does not now desire to finance facilities of this type.”¹⁸⁵

¹⁸¹ Application for a Necessity Certificate, 12/23/1943, NC 1503, US-BT000316-33; Application for a Necessity Certificate, 12/28/1943, NC 1774, US-BT000258-283; Application for a Necessity Certificate, 1/7/1944, NC 1511, US-BT000352-370, at US-BT000354; and US-BT000364 and Application for a Necessity Certificate, 3/31/1945, NC-9390, US-BT000507-15. As listed in Appendix 1.1, Humble applied for a Necessity Certificate on 4/11/1945 for which a number was never assigned. This is the 16th Necessity Certificate.

¹⁸² Application for a Necessity Certificate, 12/23/1943, NC 1503, US-BT000316-33, at US-BT000319 and US-BT000327.

¹⁸³ Application for a Necessity Certificate, 12/28/1943, NC 1774, US-BT000258-283, at US-BT000260 and US-BT000263 and US-BT000269.

¹⁸⁴ Application for a Necessity Certificate, 1/7/1944, NC 1511, US-BT000352-370, at US-BT000354 and US-BT000364.

¹⁸⁵ Application for a Necessity Certificate, 3/31/1945, NC 9390, US-BT000507-15, at US-BT000510 and US-BT000512 and US-BT000514.

5. The Benefits of Necessity Certificates to Humble at Baytown

Humble applied for 16 Necessity Certificates. All but 2 involved, at least in part, the production of aviation gasoline. The 10 aviation gasoline Necessity Certificates that Humble definitely received granted the company accelerated depreciation on more than \$14.5 million of equipment, piping, pumps, tanks and numerous other items. Humble also applied for and likely received 4 more Necessity Certificates to further aviation gasoline production with a value of at least \$191,400. The government also granted Humble accelerated depreciation on \$729,500 for equipment to connect the Baytown Ordnance Works with the main refinery and \$320,000 for the water system that served most of the refinery and plancors.

Taken together, Humble received accelerated depreciation on at least \$15,571,972 worth of equipment, infrastructure improvements, and other things that the company purchased during World War II to expand and improve the Baytown Refinery.¹⁸⁶ The Rubber Reserve Company (Rubber Reserve) also advanced Humble \$2,975,000 for the “construction of the Catalytic Cracking Unit No. 2 within Humble’s Baytown Refinery.” The unit supplied butylenes to Plancor 485 for the manufacture of butadiene.¹⁸⁷ Humble, therefore, spent at least \$18,546,972 to improve and enlarge the Baytown facility (the sum of Rubber Reserve advance and the value of the Necessity Certificates).¹⁸⁸

G. The DPC at Baytown

The Defense Plant Corporation and Humble entered into 4 DPC leases. Two of the leases were for synthetic rubber, one was for polymer hydrogenation, and the 4th was for a housing project, “Camp Butyl.” Another plancor at Baytown involved General Tire and Goodyear tire. The DPC funded in excess of \$57.2 million worth of projects and equipment at Baytown, with the synthetic rubber facilities costing about \$45 million.¹⁸⁹

1. Plancor 485 (Butadiene)

In early March 1942, representatives of Humble, the DSC, and the PAW discussed methods for increased production of war products at the Baytown site. Humble had prepared a

¹⁸⁶ The \$15,571,972 is only for those Necessity Certificates where documentation exists to show that the company received approval for accelerated depreciation.

¹⁸⁷ Application for a Necessity Certificate, 11/3/1943, WD-N-30822, US-BT000391-409, at US-BT000397. Information for each Necessity Certificate that Humble applied for is presented in Appendix 1.1. The Rubber Reserve Company, an agency of the DPC, was created in June 1940. It was superseded by the Office of Rubber Reserve in July 1945. The Office of Synthetic Rubber superseded the Office of Rubber Reserve in August 1952. For simplicity, “Rubber Reserve” will be used in this report.

¹⁸⁸ That figure does not take into consideration the amount of money that Humble spent in the mid to late 1930s for the research and production of aviation gasoline and toluene since a company could only seek accelerated depreciation on purchases made and portions of projects begun after December 31, 1939.

¹⁸⁹ This amount excludes money for Camp Butyl. See Appendix 2.1 for a listing of the Baytown DPC contracts and amendments.

prospectus “Suggested Program for Expanding Humble’s Production of Government War Products, Aviation Gasoline, Toluene, Butadiene, and Butyl Rubber.” The prospectus outlined a program that would result in production of 45,000 tons of butadiene a year, 7,200 barrels a day of 100-octane aviation gasoline, and an additional 465 barrels of toluene a day. Humble had already negotiated, but not signed, a contract with Rubber Reserve for 30,000 tons of butadiene a year, but company officials realized that a combined program could result in 45,000 tons of butadiene. However, the government was opposed to that level of increased production.¹⁹⁰

On March 23, 1942, Humble signed a contract with the DPC for construction of Plancor 485. Under the terms of the contract, Plancor 485 would produce 30,000 short tons of butadiene per year. Initially, Plancor 485 was to cost \$16,700,000 but that amount was later raised to \$18,987,000. Under the terms of the contract, Humble agreed “to prepare or cause to be prepared . . . plans, designs, specifications, and schedules as may be required for the construction and equipment of the plant. . . .”¹⁹¹ Humble further agreed to serve as the DPC’s agent for the construction of plant. The DPC agreed to reimburse Humble for all direct expenses associated with the plant’s construction. The lease would terminate 5 years after the start of production unless cancelled sooner.¹⁹² DPC policy required that companies take out insurance policies on all contracts and subcontracts naming the DPC or the lessee as the insured party. The insurance policies needed to include provisions for workmen’s compensation, employer liability, contractor liability, and automobile liability insurance. Section 14 of the Plancor 485 contract discussed the various insurance policies that Humble would need to acquire.¹⁹³

Humble also signed an operating agreement with Rubber Reserve on March 23, 1942. Under the terms of Rubber Reserve contract, in conjunction with the DPC contract, Humble agreed to “undertake all preparations necessary for the subsequent operation of the Plant for the production of butadiene.” Rubber Reserve agreed to pay Humble \$0.0075 per pound for the first 15,000 short tons of butadiene with the price gradually decreasing to \$0.0035 per pound. Rubber Reserve further agreed to pay Humble the aforementioned \$2,975,000 for refinery improvements to allow the company to produce an adequate supply of butylenes. The cost of this portion of the new facilities, which included a new “catalytic cracking unit, gas recovery system, steam and power producing equipment, [and] tanks and lines” was estimated at \$8.5 million.¹⁹⁴

¹⁹⁰ G. Parkhurst, Memorandum of Conference, 3/11/1942, US-GEN000706-07. Also see W. Gary to G. Hill, 3/13/1942, US-BT010036-38.

¹⁹¹ Agreement of Lease between the DPC and Humble Oil & Refining Company, 3/23/1942, BAYHIS-00005756-65; and Agreement Amending Agreement of Lease between the DPC and Humble Oil & Refining Company, 11/1/1943, (Plancor 485, Amendatory #1), 11/3/1943, BAYHIS-00005753-55.

¹⁹² Agreement of Lease between the DPC and Humble Oil & Refining Company, 3/23/1942, BAYHIS-00005756-65; and Agreement Amending Agreement of Lease between the DPC and Humble Oil & Refining Company, 11/1/1943, (Plancor 485, Amendatory #1), 11/3/1943, BAYHIS-00005753-55.

¹⁹³ A. Staudinger to A. Greely, 4/21/1942, MISC-00008760-76, at MISC-00008765; and Agreement of Lease between the DPC and Humble Oil & Refining Company, 3/23/1942, BAYHIS-00005756-65.

¹⁹⁴ Contract between Rubber Reserve Company and Humble Oil & Refining Company, 3/23/1942, US-BT008547-83. The operating agreement was amended three times (Amendatory Agreement, 12/17/1942,

Under the terms of the DPC contract, the butadiene plant was to begin operation on or around May 1, 1943.¹⁹⁵ Initial operation actually began on September 13, 1943, although Humble started using the “hydrogenation units, the extraction plant, and certain service facilities” before that date. In a letter to Rubber Reserve, Humble Vice President Hines Baker explained that because of delays in completing the second catalytic cracking unit in the Baytown Refinery, necessary to supply butylenes to Plancor 485, full butadiene production would not occur until December 1943.¹⁹⁶

In April 1944, a DPC synopsis of an engineer’s final report was filed for Plancor 485. The cost of the plant, to that date, was \$17,616,670. The DPC owned all of the land, buildings, and equipment. There were 40 buildings on the 81.34-acre site. It was also noted that although designed to manufacture 30,000 short tons of butadiene per year, with modification, 10,000 additional short tons could be produced annually.¹⁹⁷ Humble undertook such modifications to Plancor 485 in the fall of 1944. Upon completion of the additions to the plant in late November 1944, Humble informed Rubber Reserve that production would increase to between 40,000 and 45,000 short tons a year. Such an increase, however, was dependent on an adequate supply of butylenes.¹⁹⁸

Humble operated Plancor 485 for the remainder of the war and then until 1955 as part of the Office of Rubber Reserve’s synthetic rubber stockpile program.¹⁹⁹ The original operating agreement was for 5 years from the date of initial operation. In September 1948, Humble and the government signed extensions to the lease and operating agreements extending both to June 30, 1950. The agreements were subsequently extended to June 30, 1952. There were evidently additional extensions to the agreements, although are not extant. The Rubber Producing Facilities Disposal Commission report on Plancor 485 dated November 1953 noted that Humble operated Plancors 485 and 1082.²⁰⁰ Humble purchased Plancor 485 from the government effective April 28, 1955.²⁰¹

US-BT008540-43); Amendatory Agreement, 1/6/1943, US-BT008442-56; and Amendatory Agreement, 10/1/1945, US-BT008529-39. The last amendment is dated 7/1/1943 in the body of the contract, but on the signature page is the date 10/1/1945.

¹⁹⁵ Agreement of Lease between the DPC and Humble Oil & Refining Company, 3/23/1942, BAYHIS-00005756-65.

¹⁹⁶ H. Baker to S. Crossland, 10/22/1943, US-BT008506.

¹⁹⁷ Synopsis of Engineer’s Final Report of Defense Plant Corporation, An Instrumentality of U.S. Government, Plancor 485, Humble Oil & Refining Company, Baytown, Texas, 4/30/1944, US-BT000861-76.

¹⁹⁸ H. Baker to S. Crossland, 11/1/1944, US-BT008321-27.

¹⁹⁹ See footnote 166 for a listing of the original operating agreement and its amendments.

²⁰⁰ Extension Agreement, 9/13/1948, US-BT008168-76; Office of Rubber Reserve to Humble Oil & Refining Company, 5/19/1950, extending agreements through 8/31/1950, US-BT008148-49; Extension Agreement, 12/27/1950, extending agreement to June 30, 1952, US-BT008108-115; and Rubber

In November 1953, the Rubber Producing Facilities Disposal Commission prepared a lengthy pamphlet on Plancor 485. In describing the facility, the commission noted that as originally designed, production capacity was 30,000 short tons. However, expansion and removal of “bottle-neck[s]” had increased capacity to 49,000 short tons a year. Exhibit No. 2 to the pamphlet listed “Major Improvements Since 1949.” Although capacity was 49,000 short tons a year for fiscal years 1951, 1952, and 1953, the production was 47,300, 42,939, and 40,447 short tons per year respectively.²⁰²

On May 7, 1954, Humble submitted a memorandum to the Rubber Producing Facilities Disposal Commission that discussed the company’s operation of Plancors 485 and 1082. Humble President Hines Baker stated:

Humble has the technical competence necessary to operate the Baytown Butadiene Plant. This is based upon its experience over the past ten years in operating this plant and the Baytown Butyl Plant (Plancor 1082) under agreements with Reconstruction Finance Corporation and upon its demonstrated ability in the field of petroleum refining. . .

Humble’s technical competence is also demonstrated by the fact that it arranged for the construction of the Butadiene Plant at Baytown (Plancor 485) by E. B. Badger & Sons Co.²⁰³

The memorandum also contained the production information in Table 2.2

Producing Facilities Disposal Commission, Government-owned Synthetic Rubber Facility, Plancor 485, Baytown, Texas, 11/1953, US-BT011529-69.

²⁰¹ H. Ferguson to E. Kelly, 4/14/1955, US-BT0007460.

²⁰² Rubber Producing Facilities Disposal Commission, Government-owned Synthetic Rubber Facility, Plancor 485, Baytown, Texas, 11/1953, US-BT011529-69.

²⁰³ H. Baker to Rubber Producing Facilities Disposal Commission, 5/7/1954, US-GEN000021-24.

Table 2.2

Butadiene Production at Baytown 1946-1954²⁰⁴

Year	New	Recycle	Total
1944			31,000 ²⁰⁵
1945			41,600 ²⁰⁶
1946	42,697	653	43,350
1947	31,946	4,940	36,886
1948	42,571	5,690	48,261
1949	27,673	7,948	35,621
1950	42,454	4,096	46,550
1951	43,443	2,582	46,025
1952	38,144	2,018	40,162
1953	38,482	1,616	40,098
1954	---	---	26,100 ²⁰⁷
Total	307,410	29,543	435,653

After the sale of the plant, Office of Synthetic Rubber officials periodically visited because its sales agreement contained a national security clause.²⁰⁸ One such visit occurred in November 1955 when the inspector noted that Humble was planning to expand the plant's capacity by 16,000 tons in early 1956. A second expansion of 25,000 tons would follow the first

²⁰⁴ H. Baker to Rubber Producing Facilities Disposal Commission, 5/7/1954, US-GEN000021-24.

²⁰⁵ The figure for 1944 is from, Humble Oil and & Refining Company & Subsidiary Companies, Annual Report, 1944, BAYHIS-00006744-46.

²⁰⁶ The figure for 1945 is from Humble Oil & Refining Company, Annual Report, 1945, MIS-00026484-510, at MIS-00026496.

²⁰⁷ Production data for 1954 is from *Moody's Industrial Manual, 1955*, US-GEN003541-3553, at US-GEN003551.

²⁰⁸ In July 1948, Congress passed the National Industrial Reserve Act of 1948, 62 Stat. 1225, 7/2/1948. The law contained provisions determining facilities that might be subject to a "National Security Clause." Under the act, the Secretary of Defense was to appoint a committee of no more than 15 civilians to serve as a review board. The board was to review at least once a year property that had a national security clause and inform the Secretary of Defense if property should be retained in the industrial reserve.

expansion. The second expansion did not occur until the following fall and when completed brought total capacity to 65,000 tons annually. However, by February 1958, Humble was operating the plant at 30% of capacity because of a decline in demand and a shortage of raw material. By May 1958, Humble closed the facility except for the steam plant.²⁰⁹

2. Plancor 877 (Buna S or GR-S)

Humble was not involved in the construction or management of Plancor 877. Plancor 485, immediately to the south, supplied Plancor 877 with butadiene.²¹⁰ In late summer 1942, the DPC appointed The Goodyear Tire and Rubber Company (Goodyear) to act as the DPC's agent in the design and construction of a synthetic rubber plant. Goodyear's instructions included the signing of contract agreements for construction and equipment installation for a plant capable of producing 30,000 long tons of buna-s synthetic rubber annually.²¹¹ Goodyear entered into an architectural and engineering contract with a Cleveland firm and a construction contract with a New York City company on October 12, 1942. Construction started that day.²¹²

The DPC and Goodyear signed a construction and acquisition agreement on November 20, 1942, which formalized the parties' earlier agreements. Under the agreement, Goodyear agreed to "assist" the DPC in site acquisition and to prepare and submit to the DPC "construction plans, designs, specifications and schedules" necessary for plant construction. Goodyear again agreed to acquire and install machinery and equipment. The initial price of the plancor was \$5,500,000.²¹³ The parties amended the agreement several times raising the total cost of the project to \$7,775,000. As of August 31, 1945, the DPC placed the total cost of the plant at \$7,400,347.46. Improvements made between the end of World War II and when the plant sold in June 1955 raised the estimated total cost of the plant to \$9.8 million.²¹⁴

²⁰⁹ G. Irwin, Humble Oil & Refining Company, Plancor 485, 11/1/1955, US-GEN001176; Humble Oil & Refining Company, Plancor 485, 7/17/1956, US-GEN001174; Humble Oil & Refining Company, Plancor 485, 3/19/1957, US-GEN001171; Humble Oil & Refining Company, Plancor 485, 9/12/[1957], US-GEN001169; Humble Oil & Refining Company, Plancor 485, 2/25/1958, US-GEN001167; Federal Facilities Corporation, G. Irwin, Humble Oil & Refining Company, Plancor 485, 7/29/1958, US-GEN001165; and G. Irwin to H. Ferguson, 8/18/1958, US-BT011743.

²¹⁰ Rubber Producing Facilities Disposal Commission, Government-owned Synthetic Rubber Facility, Plancor 877, Baytown, Texas, BAYC-00012895-941, at BAYC-00012898 and BAYC-00012901.

²¹¹ O. Beiswenger to the DPC, 10/6/1942, US-BT000785-86.

²¹² Memorandum to G. Irwin, circa 1955, US-BT009309-31, at US-BT009315-316.

²¹³ Goodyear Tire and Rubber #5 Synthetic Rubber, Plancor 877, Construction and Acquisition Agreement, 11/20/1942, BAYHIS-00000079-86.

²¹⁴ Goodyear Tire and Rubber #5 Synthetic Rubber, Amendatory #1, Plancor 877, Agreement Amending Construction and Acquisition Agreement, 5/4/1943, BAYHIS-00000095-97; Goodyear Tire and Rubber #5 Synthetic Rubber, Amendatory #2, Plancor 877, Agreement Amending Construction and Acquisition Agreement, 7/1/1943, BAYHIS-00000098-100; Goodyear Tire and Rubber #5 Synthetic Rubber, Amendatory #3, Plancor 877, Agreement Amending Construction and Acquisition Agreement, 11/11/1943, BAYHIS-00000101-04; and Memorandum to G. Irwin, circa 1955, US-BT009309-31.

While Goodyear was preparing for plant construction, Rubber Reserve and The General Tire and Rubber Company (General Tire) were negotiating an operating agreement for Plancor 877. On November 27, 1942, General Tire sent Rubber Reserve a contract that General Tire had drafted “for the operation of one or more plants for the production of synthetic rubber of the Butadiene-Styrene Copolymer type.”²¹⁵ General Tire planned to hire subcontractors to help with the work including the General Latex and Chemical Corporation. In December 1942, the chairman of General Latex and Chemical wrote Rubber Reserve and said that although General Tire was the contractor, the main goal was to use the expertise of both companies on the project.²¹⁶

General Tire and Rubber Reserve entered into a formal operating agreement on February 2, 1943. Under Section 1 of the contract, General Tire agreed to act as the agent of Rubber Reserve for the operation of the plant “for the manufacture of tires and tubes . . . including the training of personnel . . . [and] the erection and operation of pilot plants” for “conducting testing, research, laboratory, experimental and developmental work” for the manufacture of synthetic rubber.²¹⁷ In Section 2, the contract specifically stated General Tire would serve as Rubber Reserve’s agent in operating the plant and that “that all persons managing and operating the Plant” would be employees of the contractor and not Rubber Reserve. The operating agreement would run for 5 years from the date of first production.²¹⁸

An “off the record” letter from Harvey Elwell, General Tire’s General Manager at Plancor 877, to Rubber Reserve illustrates the degree to which the government relied, in general, on private enterprise for synthetic rubber production. Elwell wanted an off the record letter as he believed that Goodyear should make an official report on the plant as that company was still engaged under the construction contract. In Elwell’s letter, he divided the problems into equipment, material, labor, and management. Elwell said that Goodyear had made errors when installing equipment. Other problems included the measurement of ingredients. Elwell also thought that General Tire had sufficiently trained its supervisory staff and believed that both companies had benefited from the problems he described in his letter.²¹⁹

In July 1944, the DPC issued an “Engineer’s Final Report” for Plancor 877. The report’s writer stated that on July 10, 1943, “the plant was substantially completed” and partial production began on July 21. The entire plant started operating on August 21, 1943, except for 2

²¹⁵ F. Mayfield to J. Rice, 11/27/1942, US-BT002386-87.

²¹⁶ H. Hotchkiss to J. Rice, 12/17/1942, US-BT002379-80.

²¹⁷ General Tire and Rubber Reserve Company, Agreement, 2/2/1943, BAYHIS-00000055-78.

²¹⁸ General Tire and Rubber Reserve Company, Agreement, 2/2/1943, BAYHIS-00000055-78. This is the only instance at Baytown or Baton Rouge when a private company served as an agent of Rubber Reserve or the DPC in plant operation.

²¹⁹ H. Elwell to H. Palmer, 9/22/1943, US-BT002267-69.

areas. Full operation began on September 1, 1943.²²⁰ The engineer's report contained some production information. A limited supply of butadiene "curtailed" operations, but since the beginning of 1944 plant production had exceeded rated capacity. For example, from January through April 1944, the plant produced 15,875 long tons of synthetic rubber (127% of capacity) and in May 1944, it produced 3,739 long tons. The report contained a detailed list of building and equipment at the site.²²¹

As with other synthetic rubber plants, General Tire and the government extended the operating lease numerous times. When General Tire sold the plant, the annual capacity was 44,000 long tons. Production figures for 1951, 1952, and 1953 were 47,416 long tons, 49,329 long tons, and 59,311 long tons respectively.²²² General Tire operated the plant from nearly the beginning of operations until United Carbon bought the plant and feed stocks for \$8,644,000 on July 15, 1955, as part of the Rubber Producing Facilities Disposal Commission's disposal of federally owned rubber facilities.²²³

3. Plancor 1082 (Butyl Rubber)

The DPC and Humble signed the "Agreement of Lease" for Plancor 1082 on May 18, 1942. The initial amount of the contract was \$16,854,700 and called for the production of 20,000 long tons of butyl rubber a year. As with other DPC contracts signed at Baytown, Humble was to assist the DPC in acquiring the site, which the DPC would then purchase. Humble would again serve as the DPC's agent in construction of the plant and in that capacity "prepare or cause to be prepared" for submission to DPC approval of "plans, designs, specifications, and schedules" required for the plant's construction. Humble agreed to aim to complete the plant by December 1, 1943. The lease would expire 5 years from the start of production.²²⁴ Humble and the DPC amended the lease 5 times bringing the total expenditure to \$25,995,001. The first lease amendment in July 1942 raised annual capacity to 60,000 long tons

²²⁰ Defense Plant Corporation, Engineer's Final Report, Construction of Synthetic Rubber Plant, Plancor No. 877, Baytown, Texas, 7/31/1944, US-BT000719-44. The cover letter of the report noted that it was not in fact, the final engineering report, L. Frissell to W. Drager, 8/14/1944. Also see, E. Mulcahy to W. Drager, 9/2/1943, regarding full operation of the plant, US-BT002353.

²²¹ Defense Plant Corporation, Engineer's Final Report, Construction of Synthetic Rubber Plant, Plancor No. 877, Baytown, Texas, 7/31/1944, US-BT000719-44. The cover letter of the report noted that it was not in fact, the final engineering report, L. Frissell to W. Drager, 8/14/1944. Production figures are at US-BT000772

²²² For lease extensions see, G. Hadlock, Memorandum to Directors, US-BT001915-16; Letter Agreement to H. Ferguson, 8/31/1950, US-BT007639; Memorandum to G. Irwin, circa 1955, US-BT009309-31.

²²³ Goodyear operated the plant during approximately the first six weeks of production. See E. Mulcahy to R. Burton, 9/2/1943, US-BT002352. Rubber Producing Facilities Disposal Commission, Government-owned Synthetic Rubber Facility, Plancor 877, Baytown, Texas, BAYC-00012895-941, at BAYC-00012898; and Memorandum to G. Irwin, circa July 1945, US-BT009309-31

²²⁴ Humble Oil # 2, (Butyl Rubber) Plancor 1082, Agreement of Lease, 5/18/1942, US-BT008057-69. The lease contained insurance language similar to what appeared in the Plancor 485.

a year. The second amendment signed in April 1944 lowered the rated annual capacity to 30,000 long tons annually. To ensure an adequate supply of ethylene, Humble informed the government that a pipeline was needed to connect the plant with the ethylene supplier in Texas City, TX, 30 miles away. The third amendment covered that expense. By August 1, 1944, a 4-inch pipeline connecting Plancor 1082 with the Baytown Refinery had been built.²²⁵

Numerous problems hampered construction of Plancor 1082 including design changes, a scarcity of materials, tropical storms, and labor shortages. Steel was in especially short supply, but the use of prefabricated concrete supports and wood helped alleviate delays from the steel shortage. A storm in July 1943 destroyed a half-finished cooling tower. Finally, a lack of labor in the immediate area caused work slowdowns.²²⁶ The first production of butyl rubber at Plancor 1082 occurred on September 9, 1944. Construction ended on December 16, 1944.²²⁷

According to the engineer's report, Plancor 1082 was on a 58.299 acre parcel of land to the south of Plancor 485. The DPC owned 42 buildings on the site. In addition to receiving ethylene from the pipeline, Plancor 1082 also received butanes from the catalytic crackers at the Baytown Refinery. After the extraction of raw materials, Humble either returned the butane to the refinery or sent it to Plancor 485.²²⁸

On May 18, 1942, Humble signed an operating contract with Rubber Reserve to operate Plancor 1082 similar to the one it signed to operate Plancor 485. The operating contract would run for 5 years from the beginning of production. Section 1 of the operating contract established the price schedule for finished butyl rubber, starting at \$0.015 per pound for the first 15,000 long tons and gradually declining to \$0.007 per pound for any butyl produced in excess of 60,000 long tons in the same year. Section 4 of the contract covered an extensive list of costs for which the government would reimburse Humble. Section 8 contained a clause noting that Humble, with this operating contract, would continue to engage in the type of work consistent with work they had done in the past. In section 14, Rubber Reserve retained the right to alter specifications for butyl. Section 16 required Humble to submit monthly production reports. In Section 17, the

²²⁵ Humble Oil # 2, (Butyl Rubber) Plancor 1082, Amendatory #1, Agreement Amending Agreement of Lease, 7/24/1942, BAYHIS-00005888-91; Humble Oil # 2, (Butyl Rubber) Plancor 1082, Amendatory #2, Agreement Amending Agreement of Lease, 4/17/1944, BAYHIS-00005879-87; Humble Oil # 2, (Butyl Rubber) Plancor 1082, Amendatory #3, Agreement Amending Agreement of Lease, 6/13/1944, BAYHIS-00005875-78; Humble Oil # 4, Plancor 1082, Amendatory #1, Agreement Amending Agreement of Lease, 10/14/1944, BAYHIS-00005873-74; and Humble Oil # 2, Plancor 1082, Amendatory #5, Agreement Amending Agreement of Lease, 2/19/1944, BAYHIS-00005871-72. Also see, Plancor 1082, Baytown, Texas, Humble Oil & Refining Company Lessee, Engineer's Final Report, 8/31/1944, US-BT000576-669.

²²⁶ Plancor 1082, Baytown, Texas, Humble Oil & Refining Company Lessee, Engineer's Final Report, 8/31/1944, US-BT000576-669, at US-BT000581-82.

²²⁷ Rubber Producing Facilities Disposal Commission, Government-owned Synthetic Rubber Facility, Plancor 1082, Baytown, Texas, 11/1953, US-BT011566-609, at US-BT011572.

²²⁸ Plancor 1082, Baytown, Texas, Humble Oil & Refining Company Lessee, Engineer's Final Report, 8/31/1944, US-BT000576-669, at US-BT000616 and US-BT000661.

Rubber Reserve maintained the right to approve any arrangement that Humble made for more than 6 months and for any expenditure more than \$5,000.²²⁹ Rubber Reserve and Humble amended the operating agreement several times to reflect changes in production capacity and processes.²³⁰

At least part of the process changes resulted from research that Humble conducted. In January 1943, for example, Humble responded to a Rubber Reserve request to study equipment requirements for cracking cold acid polymer. After reviewing the process, Humble reported that its engineering department believed that the new process would require \$286,000 in new refinery equipment and \$163,600 for additional plant equipment. An accurate time estimate for completion of the additional work, if adopted, was difficult because of uncertain delivery dates of equipment and material.²³¹ Another example of when Humble demonstrated its expertise happened shortly after Plancor 1082 commenced operations. In October 1944, Humble employees at Plancor 1082 realized that spent acid was causing problems. Humble proposed a procedure for discarding the acid, which Rubber Reserve accepted.²³²

Humble continued to operate Plancor 1082 for the remainder of the war and into the mid-1950s until the government sold the plant. As with other synthetic rubber plants, Humble and the government signed numerous extensions to the lease and operating agreements.²³³ In May 1952, Hines Baker wrote the Rubber Producing Facilities Disposal Commission and expressed Humble's interest in purchasing Plancors 1082 and 485. Baker said that the company's purchase of Plancor 485 was contingent on its purchase of Plancor 1082, although Humble would purchase Plancor 1082 by itself if necessary. Humble initially offered \$17.5 million for Plancor 1082. Ultimately, Humble paid \$18,478,498 for the facility and took possession in late April 1955.²³⁴

²²⁹ Contract between Rubber Reserve Company and Humble Oil & Refining Company, 5/18/1942, US-BT008026-56.

²³⁰ Supplemental Contract between Rubber Reserve Company and Humble Oil & Refining Company, 7/24/1942, US-BT008014-24; Amending Agreement between Rubber Reserve Company and Humble Oil & Refining Company, 2/6/1943, US-BT007941-56; and Amending Agreement between Rubber Reserve Company and Humble Oil & Refining Company, 2/7/1943, US-BT007924-28.

²³¹ H. Baker to S. Crossland, 1/15/1943, US-BT009889-94.

²³² H. Baker to Rubber Reserve Company, 10/19/1944, US-BT007979-80; H. Baker to Rubber Reserve, 6/26/1945, US-BT007935-36.

²³³ See for example, Extension Agreement, 9/9/1949, US-BT007650-60; Extension Agreement, 12/27/1950, US-BT007827-33; Extension Agreement, 5/1/1951, US-BT007824-25; and L. Spencer to Humble, 8/15/1952, US-BT007792.

²³⁴ H. Baker to Humble Oil and Refining Company, 5/7/1954, US-BT009146-49; Rubber Producing Facilities Disposal Commission, Contract for the Sale of Plancor 1082 to Humble Oil & Refining Company, Closing Memorandum, 4/28/1955, US-BT009156-76; and W. Cronkite to Humble, 7/8/1955, US-BT008991.

Although initial production started in September 1944, it was not until the following spring that full production was possible. A document prepared as part of the sale of the synthetic rubber plants stated, “by May 1, 1945, the plant was declared ready for commercial operation at the design level of 30,000 long tons per year.” The same document stated soon thereafter work was started to increase capacity by 25% bringing the capacity to an estimated 43,000 long tons annually. The peak of production occurred in 1951. The production data in Table 2.3 is from this document.²³⁵

Table 2.3

Butyl Production at Baytown 1945-1954²³⁶

Year	Total
1945	28,400 ²³⁷
1946	34,945
1947	30,329
1948	26,308
1949	29,823
1950	38,624
1951	40,696
1952	35,757
1953	36,944
1954	34,000 ²³⁸
Total	335,826

After the sale of the plant, officials from the Office of Synthetic Rubber made periodic inspections of Plancor 1082 as part of the National Security program. In July 1956, the inspector reported that plans were underway to increase production by 13,000 tons through the installation

²³⁵ H. Baker to Rubber Producing Facilities Disposal Commission, 5/7/1954, US-GEN000021-24. Production data for 1954 is from *Moody's Industrial Manual, 1955*, US-GEN003541-53, at US-GEN003551. The figure for 1945 is from Humble Oil & Refining Company, Annual Report, 1945, MIS-00026484-509, at MIS-00026496.

²³⁶ H. Baker to Rubber Producing Facilities Disposal Commission, 5/7/1954, US-GEN000021-24.

²³⁷ Humble Oil & Refining Company, Annual Report, 1945, MIS-00026484-510, at MIS-00026496.

²³⁸ Production data for 1954 is from *Moody's Industrial Manual, 1955*, US-GEN003541-53, at US-GEN003551.

of new facilities. The following spring the inspector noted that Humble had completed engineering work and placed long-term orders for equipment necessary for a 16,000-ton expansion. According to an inspection report from February 1958, production was 100 long tons a day. By late July of that year, Humble was manufacturing butyl at a rate of 125 long tons per day.²³⁹

4. Plancor 1909 (Hydrogenation)

On July 21, 1943, the DPC and Humble signed the lease agreement for Plancor 1909 for the construction of a polymer hydrogenation facility. The Plancor 1909 agreement contained language discussing “Class I,” “Class II,” and “Class III” facilities. A facility’s class depended on its location and function. Class I facilities were those wholly built on the 2-acre parcel of land that the DPC leased from Humble. Humble needed Class II facilities, which carried an estimated cost of \$260,000, for the operation of the plancor, but these facilities were located within the Baytown Refinery. Class III facilities were “miscellaneous” facilities that Humble would acquire and to which Humble would hold title. The government took title to Class I and Class II facilities. The Class III facilities were “of a non-removable nature or so inter-related,” that they could not be easily distinguished once installed. Because the government took title to the Class I and Class II facilities Humble was only required to carry insurance on those facilities and not on the Class III facilities.²⁴⁰

The Plancor 1909 land was to be leased for 20 years from the date Humble and the DPC signed the lease. Humble leased the Class I and II facilities for 5 years from the start of production. If the government removed the Class I facilities from the site, or if Humble purchased them, the lease would terminate early. As in the other Baytown Plancor contracts, Humble agreed to act as the DPC’s agent for construction of the facilities. In that capacity, Humble would arrange for design and planning work and could negotiate and enter into construction contracts. If desirable, Humble could also do part of the construction. The DPC retained approval power over such work. However, “in the absence of disapproval of such flow sheets, plans, designs, specifications and schedule by PAW,” Humble could proceed in order to have the entire facility completed by April 30, 1944. The initial cost of Plancor 1909 was \$2,750,000. Three amendments extended the completion date, altered language, and raised the total expenditure to \$4,492,550, which included \$510,200 for the Class II facilities.²⁴¹

²³⁹ G. Irwin, Humble Oil & Refining Company, Plancor 1082, 7/17/1956, US-GEN0001173; G. Irwin, Humble Oil & Refining Company, Plancor 1082, 3/19/1957, US-GEN0001172; G. Irwin, Humble Oil & Refining Company, Plancor 1082, 2/25/1958, US-GEN0001168; G. Irwin, Humble Oil & Refining Company, Plancor 1082, 7/29/1958, US-GEN0001166.

²⁴⁰ Agreement of Lease between Defense Plant Corporation and Humble Oil & Refining Company (Baytown, Texas) 100-Octane Aviation Gasoline, 7/21/1943, revised 8/31/1945, MAA_EM-001881-901. The DPC issued a letter of intent to Humble authorizing \$1 million in purchases on 8/6/1943, H. Klagsbruner to Humble Oil & Refining Company, MAA_EM-001719.

²⁴¹ Agreement of Lease between Defense Plant Corporation and Humble Oil & Refining Company (Baytown, Texas) 100-Octane Aviation Gasoline, 7/21/1943, revised 8/31/1943, MAA_EM-001881-901; Agreement Amending Agreement of Lease between Defense Plant Corporation and Humble Oil & Refining Company (Baytown, Texas), Plancor 1909, 100 Octane Aviation Gasoline, 6/1/1944, revised

Documents from the spring of 1943 detailed the negotiations between Humble and the DPC and demonstrate Humble's influence in shaping the Plancor 1909 contract and indicate that an exchange of views occurred before the plancor contract was signed in the summer of 1943. In April, Humble prepared two estimates for a hydrogenation unit and neohexane unit (the latter was dropped from the project) that contained explanations of the class of facilities and costs. Included with the second estimate was a March memorandum that Humble prepared discussing how additional aviation gasoline expansion could occur at Baytown.²⁴² Hines Baker of Humble wrote to George Parkhurst of the PAW on April 15, 1943, to explain Humble's position on expanding 100-octane aviation gasoline production. Baker recounted that several meetings had been held and numerous documents given to the PAW by Humble. Baker also concluded that he thought the PAW was only interested in the hydrogenation program. In submitting the proposal, Baker said that Humble was doing so at the government's request and if the government wanted to proceed, Humble would do so to "aid in the war effort."²⁴³ Baker then outlined the basic proposal that included Humble leasing the site, three classes of "investments" and why they were necessary, and the company's role as an agent for the DPC in building the plancor.²⁴⁴

In mid-June, Parkhurst of the PAW wrote to R. Cragin, also of the PAW, regarding Humble's proposal and in doing so reflected on the PAW's relationship with private enterprise for the production of aviation gasoline. Parkhurst reminded Cragin that Humble had "reluctantly" filed a PD-200 application at the PAW's "insistence" to secure the necessary material to construct a low pressure hydrogenation unit. Baker subsequently told Parkhurst that they wanted to withdraw the PD-200 form because the company was going to use another method that would render hydrogenation unnecessary and that there was a lack of data on the hydrogenation method. (Baker had, in fact, withdrawn the PD-200 at the end of May.) Parkhurst then said:

[F]urthermore, I know of no company with which it would be more difficult to work out a satisfactory business arrangement covering a unit which it is reluctant to install. Humble is completely unwilling to handle this or any other major 100 octane project which we have had under discussion in recent months on either an approximately normal private ownership basis or on a Defense Plant basis. Humble insists on a type of arrangement which would give it all of the advantages of private ownership without any of the risk or other disadvantages. . . Furthermore, quite aside from these difficulties, I

7/25/1944, MAA_EM-001923-31; Humble Oil & Refining Company, Amendatory #2, Plancor 1909, Agreement Amending Agreement of Lease, 1/23/1945, MAA_EM-001613-17; Humble Oil & Refining Company, Amendatory #3, Plancor 1909, Agreement Amending Agreement of Lease, 8/13/1945, MAA_EM-001610-12.

²⁴² A. Draeger, Baytown 100 Octane Expansion Program – Investment Estimates, 4/14/1943, MAA_EM-001838-77.

²⁴³ H. Baker to G. Parkhurst, 4/15/1943, MAA_EM001832-35.

²⁴⁴ H. Baker to G. Parkhurst, 4/15/1943, MAA_EM001832-35; H. Baker to G. Parkhurst, 6/18/1943, MAA_EM-001780-84.

have a great deal of trepidation about asking Humble or any other oil company to undertake the construction of any facilities which it does not feel are desirable.²⁴⁵

On June 18, Baker wrote Parkhurst about expanding the 100-octane gasoline program through several methods including hydrogenation. Baker outlined requirements and noted that the entire project required hydrogen from the Baytown Ordnance Works. He also agreed to sign a DPC contract, although he thought a letter of intent would be sufficient to start the project. The DSC, or “some other government agency” would supply the copolymer. Baker said Humble would operate the leased facilities, supply the labor, and be responsible for maintenance.²⁴⁶

Early in 1944, Baker responded to a letter from Robert Cragin of the PAW. Baker’s letter underscored Humble’s involvement in the 100-octane program. Cragin had written Baker regarding a possible site visit by a PAW staffer. Baker told Cragin that the staffer was welcome, but Humble had:

no Defense Plant Corporation property in any way involved in the 100 octane program [although] [w]e are now constructing Plancor 1909 . . . [a]ll other properties involved in our 100 octane program are properties belonging to Humble Oil & Refining Company and not to Defense Plant Corporation.²⁴⁷

While work continued on the plancor, Humble and the DSC signed an operating contract on June 1, 1944, which was amended several times. The operating contract discussed Humble’s leasing of Class I and II facilities. Humble agreed to prepare for operation of the plant concurrently with the ongoing construction. Upon completion the plant would hydrogenate 8,000 barrels of feed stock a day.²⁴⁸

On September 21, 1944, Humble informed the PAW that Plancor 1909 had started operating. Humble completed construction of the plant on December 30, 1944.²⁴⁹ Humble had operated Plancor 1909 for less than a year when World War II ended. On August 19, 1945, the operating agreement was cancelled and on December 19, 1945, the operating agreement was terminated.²⁵⁰

²⁴⁵ G. Parkhurst to R. Cragin, 6/12/1943, MAA_EM001774-75; G. Parkhurst to H. Baker, 4/22/1943, MAA_EM-001831.

²⁴⁶ H. Baker to G. Parkhurst, 6/18/1943, MAA_EM-001780-84; H. Baker to G. Parkhurst, 7/10/1943, MAA_EM-001761-64; H. Baker to G. Parkhurst, 7/27/1943, MAA_EM-001746-49; and H. Baker to G. Stoner, 8/17/1943, BAYHIS-00003749-50.

²⁴⁷ H. Baker to R. Cragin, 2/2/1944, MAA_EM-000689.

²⁴⁸ Operating Contract between Defense Supplies Corporation and Humble Oil & Refining Company (Baytown Refinery), 6/1/1944, revised 7/25/1944, BAYHIS-00023011-38.

²⁴⁹ F. Watts to F. Grant, 9/21/1944, MIS-00013219; and War Assets Administration, Plancor 1909, Humble Oil & Refining Company, Baytown, Texas, 4/11/1946, US-BT012012-18.

²⁵⁰ H. Ferguson to F. Ronan, 9/3/1946, MAA_EM-001586-87 and Report of Final Accountability, Plancor 1909, Humble Oil & Refining Company, Baytown, Texas, 2/27/1947, MAA_EM-001522-24.

Humble made several offers in 1946 to purchase portions of Plancor 1909. The RFC and the War Assets Administration (WAA) realized that the government could not sell Plancor 1909 as a unit and it would be “cannibalized,” because the hydrogenation of base stock did not have postwar commercial viability. In July 1946, Humble purchased the Plancor 1909 cooling tower and other facilities.²⁵¹

H. Government Inspectors and Humble’s Wartime Management of the Baytown Facility

Inspection by government officials, either civilian or military personnel, of plants and factories engaged in war production was a part of wartime America. The Baytown Refinery was no different. As noted, the DSC aviation gasoline contract contained provisions for inspection and delivery of aviation gasoline.²⁵² At the Baytown Ordnance Works military officials were onsite and inspected toluene. PAW employees were also present at the various Baytown plancors. In February 1944, for example, the PAW wrote Humble to set up a visit by a PAW employee.²⁵³

Plant safety, fire protection, and adequate steps to prevent espionage were all reasons for plant inspections during World War II. The DPC and the military both visited defense plants and at times their work overlapped. The DPC and military addressed that duplication in the fall and winter of 1942. At the time, the DPC conducted “plant protection inspections” of facilities for which it had provided funding. The military considered the DPC inspections duplicative of those conducted by the military including the Ordnance Branch. The DPC agreed to stop protection inspections provided it received a copy of any recommendations that the military made.²⁵⁴

In December 1942, the military and the DPC again addressed the issue. The military noted that the DPC “through its resident engineer, retains primary responsibility during construction of projects.” Upon inspection of a plant “the lessee-operator, through the D.P.C. resident engineer” would undertake any necessary changes that involved “structural additions, changes or installations” that required DPC approval and funding. The “lessee-operator” was

²⁵¹ I. Grumbel to A. Strickler, 5/1/1946, US-BT000218; War Assets Administration, Plancor 1909, Humble Oil & Refining Company, Baytown, Texas, 4/11/1946, US-BT012012-18; and H. Ferguson to W. Pierson, 9/12/1946, BAYHIS-00000786-87.

²⁵² At least one document discussed how Humble hired the inspectors when deliveries of feed stock were being made to Plancor 1909. See H. Baker to G. Stoner, 10/17/1944, MAA_EM-001114.

²⁵³ H. Baker to R. Cragin, 2/2/1944, MAA_EM-000689.

²⁵⁴ J. Dillion to Commanding General, Materiel Command, Army Air Forces, Chief of Ordnance, Chief, Chemical Warfare Service, and Commanding Generals, All Service Commands, 9/10/1942, US-GEN002330. Also see, G. Englehart to Commanding Generals, All Service Commands, Commanding General, Military District of Washington, Chief of Ordnance, Chief of Chemical Warfare Service, 12/18/1942, US-GEN002328-29.

responsible for “housekeeping, personnel control, organization for protection, including guard forces, and other measures appropriate to good management.”²⁵⁵

Although the DPC and the military appeared to have reached an amicable solution regarding inspections, it appears that the military and PAW were unable to do so. The Eighth Service Command was headquartered in Dallas and had jurisdiction over Texas, Louisiana, and Arkansas.²⁵⁶ In August 1943, War Department personnel expressed dissatisfaction with PAW inspectors. An Army officer called joint inspections with the PAW “a farce.” Perhaps not surprisingly, the officer said that Army inspectors were “highly thought of and their advice is followed.”²⁵⁷ In a follow up to the memorandum several days later the writer reported that he had been told that in the Eighth Service Command there were four PAW representatives. Two were satisfactory and two were incompetent. The Army had through “informal suggestion” convinced the PAW to dismiss one of the incompetents. An emphatic request had been made to the PAW to improve its field operations.²⁵⁸

I. Humble’s Wartime Expansion and Production Record at Baytown

As already discussed, Humble participated in all 3 of the major federal programs to increase the nation’s industrial output in support of the war effort including the DPC, the Certificates of Necessity, and the EPF programs. Humble also participated in the Aviation Gasoline Reimbursement Plan. The DPC financed facilities at Baytown were valued at approximately \$57.2 million. The total cost of the Baytown Ordnance Works was just under \$14.2 million. Humble invested between \$18.6 and \$18.7 million of its own through the Necessity Certificate program and the Rubber Reserve advance. That amount does not include any private investments made before January 1, 1940. Tellingly, the authors of the corporate history wrote, “[o]btaining capital for expansion during wartime was no problem. The construction of the government-owned war plants operated by Humble was financed by the government.”²⁵⁹

There are 3 company-wide indicators that underscore Humble’s economic growth before, during, and after World War II. These appear in Table 2.4.

²⁵⁵ G. Engelhart to Commanding General of All Service commands, commanding General, Military District of Washington, chief of Ordnance, Chief of Chemical Warfare Service, 12/18/1942, US-GEN002328. Two areas of concern were blackout procedures and fire protection. See for example, G. Irwin to L. Cheney, 3/3/1943, regarding blackout procedures at several synthetic rubber plants, US-GEN002331-33 and C. Richmond to S. Husbands, 11/12/1943, US-GEN002322-23, regarding fire issues.

²⁵⁶ <http://www.archives.gov/research/guide-fed-records/groups/338.html>.

²⁵⁷ A. Lerch to G. Englehart, 8/4/1943, US-GEN002327.

²⁵⁸ G. Engelhart to A. Lerch, 8/7/1943, US-GEN002324.

²⁵⁹ H. Larson and K. Porter, History of Humble Oil, MIS-00023931-24344, at MIS-00024264.

Table 2.4

Humble's Economic Growth Indicators, 1934-1956²⁶⁰

Year	Net Fixed Assets	Percent Change	Dividends	No. of Employees
1934	\$193,100,000		\$9,000,000	11,420
1935	\$204,100,000	+5.70%	\$9,000,000	11,185
1936	\$226,300,000	+10.88%	\$13,500,000	12,949
1937	\$269,900,000	+19.27%	\$18,000,000	13,732
1938	\$295,400,000	+9.45%	\$18,000,000	13,235
1939	\$304,300,000	+3.01%	\$18,000,000	12,943
1940	\$313,100,000	+2.89%	\$18,000,000	12,610
1941	\$325,100,000	+3.83%	\$18,000,000	13,194
1942	\$336,600,000	+3.54%	\$18,000,000	12,557
1943	\$341,500,000	+1.46%	\$22,500,000	13,409
1944	\$353,600,000	+3.54%	\$27,000,000	14,359
1945	\$384,200,000	+8.65%	\$27,000,000	16,056
1946	\$437,500,000	+13.87%	\$29,200,000	17,375
1947	\$481,700,000	+10.10%	\$53,900,000	18,023
1948	\$560,700,000	+16.40%	\$71,900,000	18,954
1949	\$631,100,000	+12.56%	\$71,900,000	18,321
1950	\$679,600,000	+7.68%	\$71,900,000	17,653
1951	\$770,600,000	+13.39%	\$80,900,000	18,112
1952	\$854,400,000	+10.87%	\$81,800,000	18,800
1953	\$915,800,000	+7.19%	\$81,800,000	18,821
1954	\$981,800,000	+7.21%	\$81,700,000	18,740
1955	\$1,092,500,000	+11.28%	\$82,800,000	18,729

²⁶⁰ Humble Oil & Refining Company, 1956 Annual Report, MISC-00010461-87.

1956	\$1,166,800,000	+6.80%	\$86,100,000	19,001
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The 3 economic factors in Table 2.4—net fixed assets, total dividends paid, and number of employees—are company-wide and do not just represent the Baytown Refinery area. However, given the size and importance of the Baytown Refinery area to Humble’s company profile, the numbers do give a good indication of the situation at Baytown. Albeit unevenly, the value of Humble’s fixed assets increased each year between 1934 and 1956. From 1939 through 1945, the value of Humble’s fixed assets reflected, in part, growth due to wartime expansion. Acquisition of some plancors, immediately after the war and then of the synthetic rubber plancors in 1955, possibly contributed to the increase during those years.

During World War II, Humble as a privately owned and operated company continued to pay dividends to its stockholders. Despite wartime measures to prevent excessive profits and high inflation, Humble increased total dividend payments in 1943 and in 1944. The Humble Annual Reports for the wartime years provide information on dividends paid per share. In 1940 through 1942, Humble paid \$2.00 per share of stock. In 1943, the company split its stock from 9 to 18 million shares with a corresponding value of \$2.50 and \$1.25 respectively. In 1944 and 1945, Humble paid \$1.50 per share and in 1946, the dividend increased to \$1.63.²⁶¹ Indeed, Humble did pay excess profit taxes in 1942, 1943, and 1945 in accordance with the legislation passed in April 1942 that provided for the renegotiation of contracts and repayment of excess profits. The exact amount is not broken out in the company’s annual reports. Humble’s 1945 Annual Report noted that the company was challenging the amount of excess profit tax paid.²⁶²

Another indicator that shows the Humble’s stability after World War II is the relative consistency in the number of Humble’s employees. Although there were years when the number of employees did decline, there were not dramatic layoffs at Humble. Some industries that had significant wartime contracts, such as aircraft manufacturers, had to layoff large numbers of workers after the war.²⁶³

J. Post World War II

The fear of excess postwar capacity that was a central part to the debates and policies of 1940 and 1941 never materialized to the degree that many feared. This seems particularly true in

²⁶¹ Humble Oil & Refining Company & Subsidiaries, Annual Report 1940, MIS-00026446-54; Humble Oil & Refining Company and Subsidiary Company, Annual Report 1941, MIS-00026455-65; Humble Oil & Refining Company and Subsidiary Company, Annual Report 1942, MIS-00026466-73; Humble Oil & Refining Company and Subsidiary Companies, Annual Report 1943, MIS-00026474-83; Humble Oil & Refining Company, Annual Report 1945, MIS-00026484-510; Humble Oil & Refining Company, Annual Report 1946, MIS-00026511-29.

²⁶² On 4/28/1942, Congress passed the “First Renegotiation Act” that allowed for the renegotiation of any supply contract valued at greater than \$100,000, 56 Stat. 226, at 244. Humble Oil & Refining Company and Subsidiary Companies, Annual Report 1943, MIS-00026474-83, at MIS-00026477; and Humble Oil & Refining Company, Annual Report 1945, MIS-00026484-510, at MIS-00026503.

²⁶³ Pattillo, Pushing the Envelope, p. 154.

the petroleum industry, including the Baytown and Baton Rouge Refineries. Although several of the DPC leases and operating contracts ended and plants were dismantled and sold for scrap the federal government had paid for those plants and they did not become excess private property. Humble continued to manage production of butadiene at Plancor 485 and butyl production at Plancor 1082 into the mid 1950s as part of the nations synthetic rubber stockpile program.

After the war, Humble turned part of its attention to the domestic market and utilized the plant expansion funded through the Necessity Certificate program in World War II and the acquisition of the Baytown Ordnance Works. Humble leased the Baytown Ordnance Works in August 1945 and reopened the facility for the production of solvents used in paints, varnishes, insect sprays, and gasoline.²⁶⁴ Humble aimed to sell products “to airlines, railroads, industrial plants, and road-building and maintenance concerns.” The strong consumer economy that emerged in the United States after World War II became a significant user of petroleum-based products including higher-octane automobile gasoline. Automobile gasoline with 85-octane and even 95-octane ratings replaced the lower octane gasoline used in automobiles during World War II. The number of Humble automobile service stations doubled in the 3 years after the war as Humble tapped into the rapidly expanding car society that would become so prevalent in the United States by the 1950s.²⁶⁵

K. The Korean War and Aviation Gasoline at Baytown

When North Korean troops swept south in June 1950, American society was much different than in 1940 and the impact of the Korean War on society differed significantly from the impact of World War II. The restrictions placed on the production of consumer goods during World II did not occur during the Korean War. Automobile production continued during the Korean War. Commercial aircraft flight, that had resumed even before World War II had ended, also continued during the Korean War.²⁶⁶

Not only was the country’s economy and society different during the Korean War, but the war itself was different. Unlike World War II, there was not a submarine menace to threaten the Merchant Marine. The military could move supplies of aviation gasoline and other war materiel with relative ease. Domestically, the many pipelines built during and after World War II facilitated the flow of crude oil and petroleum products. The role of the United States government to the petroleum industry also was different. Although accelerated depreciation and loans again occurred, there were no contracts analogous to ones that the DSC signed with refiners in World War II. As noted, Humble continued to operate the synthetic rubber plants for the strategic stockpile. Whereas World War II was characterized by a large degree of cooperation between the PAW, the DSC, and the petroleum industry during the Korean War era, that level of cooperation was unnecessary.

²⁶⁴ See footnote 159.

²⁶⁵ Larson and Porter, History of Humble Oil, MIS-00023931-24344, at MIS-00024273-74.

²⁶⁶ Pattillo, Pushing the Envelope, pp.151.

This is not to say that the Korean War did not have any domestic impact. There was an emphasis on war production with the manufacture of military aircraft superseding commercial aircraft. There was also an expansion of governmental power in 1950 when Congress passed the Defense Production Act that contained provisions similar to many of the statutes passed before and during World War II. The Petroleum Administration for Defense oversaw petroleum issues including production during the Korean War, but only issued six orders compared to the 81 issued during World War II.

1. Korean War Tax Amortization Certificates (Necessity Certificates) and Government Loans at Baytown

The strength of the economy facilitated military expansion during the Korean War. Bruce Brown, who served in the PAD, noted in his history of the agency:

[i]n the relatively healthy private enterprise economy that prevailed following World War II the United States government should have been able and indeed was able to induce the erection of practically all of the additional factory facilities that were deemed necessary for industrial mobilization by merely granting such a special tax benefit as the right to write off the cost of the new facility over a brief period of five years, instead of the longer periods provided by the Internal Revenue Code.²⁶⁷

The Revenue Act of 1950 contained provisions similar to the Second Revenue Act of 1940 regarding accelerated depreciation for privately financed wartime business expansion. Under the 1950 law, accelerated depreciation would occur over a 60-month period. Businesses could apply for accelerated depreciation on facilities completed after December 31, 1949.²⁶⁸ During the Korean War, Humble applied for 23 tax amortization certificates worth \$50.1 million. They received 19. Two were denied and the status of 2 certificates is unknown. The total worth of the 19 received exceeded \$13.4 million. Unlike the Necessity Certificates for World War II, copies of Necessity Certificate applications were not retained. The information in Table 2.5 is from PAD reports and documents.

²⁶⁷ Brown, Oil Men in Washington, MISC-00015434-804, at MISC-000015491.

²⁶⁸ 64 Stat. 906, 9/27/1950.

Table 2.5

Baytown Tax Amortization Certificates (Necessity Certificates)

During the Korean War

Application No.	Facility	Amount Received	Bates Number
TA-5056	facilities to recover 95% para-ethylene	denied	US-GEN002745
TA-5057	70,000 bbls. crude still in replacement of smaller unit	\$902,100.00	US-GEN002641
TA-5058	additions to feed preparation unit for cat cracker	\$51,558.75	US-GEN002648
TA-5000	additions to alkylation unit	\$177,845.24	US-GEN002613
TA-5004	additions to catalytic cracking unit	\$359,250.00	US-GEN002679
TA-5003	additions to catalytic cracking unit	\$350,500.00	US-GEN002681
TA-5002	additions to hydroformer	\$64,941.00	US-GEN002587
TA-5001	tankage to permit manufacture and shipment of three grades jet fuel	\$35,200.00	US-GEN002640
TA-4999	additions to catalytic cracking unit	denied	US-GEN002662
TA-8334	modifications to catalytic cracking unit to increase capacity 3,560 B/CD	\$86,125.00	US-GEN002680
TA-8335	additions to existing catalytic cracking unit to increase capacity	\$213,850.00	US-GEN002680
TA-8687	addition to light ends unit to increase recovery of propylene and butylene aviation gasoline for rubber manufacture	\$193,700.00	US-GEN002723
TA-8688	addition of refrigeration to alkylation unit to increase aviation and alkylate production	\$414,000.00	US-GEN002653

TA-8686	addition to light ends unit to save steam and cooling water	\$32,500.00	US-GEN002723
TA-8685	additions to hydroformer unit to increase production of aromatics	\$99,000.00	US-GEN0025653
TA-12234	installation of facilities for propane deasphalting of residue from non-lube crudes to prepare catalytic cracking feed stocks	\$5,000,000.00	US-GEN002708
TA-12472	additions to sulphuric acid recovery and concentration facilities	\$411,600.00	US-GEN002679
TA-12266	install power and steam facilities required by additional process equipment	\$916,250.00	US-GEN002701
TA-17831	addition of new electrical sub-station and distribution system	status unknown	US-GEN002666
TA-18228	installation of additional vapor recovery unit to process wet gas from catalytic cracking units	\$2,647,500.00	US-GEN002702
TA-18314	rehabilitation of crude distillation equipment and related facilities	status unknown	US-GEN002705
TA-18313	installation of catalytic polymerization unit	\$3,320,000.00	US-GEN002743
TA-24957	addition to aromatics extraction facilities to increase production of 99% purity aromatics by 379 B/D	\$140,000.00	US-GEN002729
Total Received		\$13,415,919.99	

The second column in Table 2.5 gives the verbatim description that appeared in the source documents. During the Korean War, Humble received accelerated depreciation primarily on equipment used to increase aviation gasoline production, although the company did receive accelerated depreciation on equipment for other purposes. A difference between the amortization program during the Korean War and World War II is that during the Korean War the PAD usually recommended partial tax amortization. In other words, a company often could not take accelerated depreciation on the entire cost of a facility. Instead, the PAD recommended to the National Production Authority (NPA) that it grant only partial depreciation by determining

what percentage of the new facility's production was for the war effort. The figures in Table 2.9 are the amount on which the government allowed Humble to receive accelerated depreciation.²⁶⁹

During the Korean War, the government again made low-interest loans for facility expansion available. However, there is no evidence indicating that Humble received such a loan to expand the Baytown Refinery.

2. Humble's Korean War Production Record

Beginning in October 1950 and running for 18 months through March 1952, the PAD compiled high-octane aviation gasoline production statistics. Data for the Baytown Refinery is presented in Table 2.6.

²⁶⁹ Brown, Oil Men in Washington, MISC-00015434-804, at MISC-00015494-95. The NPA was the Federal agency that oversaw Korean War mobilization. The President created the NPA on September 9, 1950, when he issued Executive Order 10161. The NPA was under the Department of Commerce. See, Executive Order 10161, 9/12/1950, 15 FR 6103.

Table 2.6

Military Aviation Gasoline Production Data for Baytown October 1950 – June 1952²⁷⁰

(42-gallon barrels per day)

Report Title	Production Month	115/145 Octane	100/130 Octane	Bates Number
Aviation Gasoline Report No. 2, November 29, 1950	Oct. 1950	Inc. in Baton Rouge data	Inc. Baton Rouge data	MISC-00005911-12
Aviation Gasoline Report No. 3, December 25, 1950	Nov. 1950	46,000	16,000	MISC-00005913-14
Aviation Gasoline Report No. 5, February 26, 1951	Jan. 1951	105,000	3,000	MISC-00005918-20
Aviation Gasoline Report No. 6, March 26, 1951	Feb. 1951	58,000	(32,000)	MISC-00005921-23
Aviation Gasoline Report No. 7, April 25, 1951	March 1951	95,000	0	MISC-00005924-26
Aviation Gasoline Report No. 8, May 31, 1951	April 1951	92,000	No Figure	MISC-00005927-29
Aviation Gasoline Report No. 9, June 26, 1951	May 1951	60,000	No Figure	MISC-00005930-32
Aviation Gasoline Report No. 10, July 30, 1951	June 1951	20,000	No Figure	MISC-00005933-35

²⁷⁰ PAD Report No. 1 is for the first half of October 1950 and therefore is not included in Table 2.10. The reports contain subtotals for each district. The subtotals for District III are the correct sum of what is reported for each refinery indicating that the figure of zero or the entry “no figure” means no production of that particular grade of aviation gasoline.

Aviation Gasoline Report No. 11, August 31, 1951	July 1951	30,000	No Figure	MISC- 00005936-38
Aviation Gasoline Report No. 12, September 30, 1951	Aug. 1951	18,000	No Figure	MISC- 00005939-41
Aviation Gasoline Report No. 15, December 28, 1951	Nov. 1951	79,000	No Figure	MISC- 00005948-50
Aviation Gasoline Report No. 16, January 31, 1952	Dec. 1951	97,000	No Figure	MISC- 00005951-53
Aviation Gasoline Report No. 17, February 29, 1952	Jan. 1952	52,000	0	MISC- 00005795-5802
Aviation Gasoline Report No. 18, March 31, 1952	Feb. 1952	35,000	0	MISC- 00005964-66
Total		787,000	(13,000)	

Additional production data for the Korean War years has not yet been located. Although shortages of aviation gasoline sometimes occurred during the Korean War, especially in the spring of 1952 when the oil workers struck, the overall situation was better than that of the World War II years. Refinery facilities and the nation's expanded crude oil and petroleum products transportation infrastructure remained in operation after World War II. Commercial sales of higher octane aviation gasoline continued during the Korean War. In addition, scientific and technical knowledge of aircraft design and aviation fuels continued to grow between World War II and the Korean War, and continued during and after the Korean War.²⁷¹

IV. The Standard Oil Company of Louisiana

A. Standard's Early History and Expansion

The Standard Oil Company of Louisiana was founded in 1909 and incorporated in 1911. When the United States Supreme Court broke up Standard Oil of New Jersey in 1911 on antitrust grounds, the court essentially allowed Standard of New Jersey to retain ownership of Standard of Louisiana. In 1918, for example, Standard of New Jersey owned nearly all of Standard of Louisiana's \$10,000,000 capital stock. By the end of the 1920s, Standard of New Jersey

²⁷¹ As shown in the PAD reports referenced in Table 2.6, civilian production of some grades of aviation gasoline sometimes exceeded military production.

continued to own almost all of Standard of Louisiana's issued stock.²⁷² By the mid-1930s, *Moody's Manual of Investments* no noted that Standard, along with Humble Oil and Carter Oil were "[s]ubsidiaries of primary importance in oil production in the United States." The publication noted that Standard manufactured a "[c]omplete line of petroleum products." In discussing the parent company's research and development work *Moody's* reported that:

The commercial production of '100 octane' aviation gasoline made through the use of the hydrogenation process was begun early in 1935 and is believed to be a particularly important development, a fuel of this type making possible remarkable advances in aviation engine design and performance.²⁷³

Moody's also reported that in 1935 the average daily run of crude oil at Baton Rouge was 81,800 barrels (each barrel held 42 gallons.) This was down slightly from 84,400 barrels per day the previous year. The 1937 daily average was 103,100 barrels, which was up from 93,300 barrels the previous year. In 1940, the average daily run at Baton Rouge dropped to 95,102 barrels.²⁷⁴

B. Standard's Early Wartime Production

Building on its aviation gasoline production in the mid and late 1930s as a base, Standard continued to manufacture aviation gasoline in 1940 and 1941. As the international situation continued to deteriorate in July 1941, the recently created Office of Petroleum Coordinator (OPC) sent telegrams to refineries seeking information on aviation gasoline production capacity. Marion Rathbone, President of Standard, responded on July 23, 1941. Rathbone provided an overview of facilities at Baton Rouge and discussed the sources of stock used to produce aviation gasoline. As of that date, the total production of all aviation gasoline at Baton Rouge was estimated at 7,230 barrels per day. Of that amount, 5,036 barrels per day were 100-octane aviation gasoline. The production of 100-octane gas was evenly split between the hydrcodimer and alkylate production methods. Standard shipped the remaining base stock as either 73-octane or 92-octane gasoline or transferred it to the Standard of New Jersey's affiliate refinery in Aruba, Lago Oil and Transport Company, for further processing. When Rathbone wrote the OPC, Standard was able to store 780,000 barrels at Baton Rouge, 600,000 barrels at the Maryland Tank Farm, and potentially an additional 400,000 barrels at the Maryland Tank Farm once the company completed repairs on eight tanks.²⁷⁵

²⁷² *Moody's Analyses of Investments, 1920*, US-GEN003192-95 and *Moody's Manual of Investments, 1930*, US-GEN003243-49. Standard of New Jersey owned \$9,994,300 of Standard of Louisiana's capital stock in 1918. In 1929, the parent company owned \$74,979,850 of \$75,000,000 of Standard of Louisiana.

²⁷³ *Moody's Manual of Investments, 1936*, US-GEN003293-3305, at US-GEN003295-97.

²⁷⁴ *Moody's Manual of Investments, 1939*, US-GEN003333-46, at US-GEN003335; *Moody's Manual of Investments, 1946*, US-GEN003426-37, at US-GEN003429. *Moody's Manual of Investments, 1936*, US-GEN003293-3305, at US-GEN003295-97. In 1945, the average daily run at Baton Rouge was 137,209 barrels.

²⁷⁵ M. Rathbone to W. Gary, 7/23/1941, MIS-00005039-44. For information on the Aruba affiliate see, Larson, Knowlton, and Popple, New Horizons, MIS-00023443-930, at MIS-0002347-48 and pp. 182-83.

Standard also produced other products for the military in 1940 and 1941. From June 1940 through December 1941, Standard signed 25 contracts of greater than \$50,000 with the Army, Navy, or a foreign government. Those contracts, with a total value in excess of \$16 million, were for such products as fuel, fuel oil, gasoline, asphalt, and “Aircraft Engine Fuel.”²⁷⁶ Such production also continued throughout the war.

C. Standard Oil of New Jersey’s DSC Aviation Gasoline Contract

In late 1941 and early 1942, Standard Oil of New Jersey and government officials negotiated a 100-octane aviation gasoline contract for Standard. In mid-November 1941, Standard of New Jersey submitted an outline of a contract to the OPC. In the outline, Standard of New Jersey noted that it and its subsidiary companies presently manufactured 13,000 barrels per day of 100-octane aviation gasoline, with “new facilities already planned or under way” to increase production to 16,000 barrels per day. Standard of New Jersey and its affiliates were also prepared to spend an additional \$30 million on new facilities. The company proposed that it sell aviation gasoline to the government for \$0.1375 per gallon through December 31, 1943, with the price dropping 1 cent per year until December 31, 1945.²⁷⁷

The parties reached a preliminary agreement on January 5, 1942, and they signed the contract on January 13. In part 1 of the contract it was noted that Standard of New Jersey, as the seller, acquired gasoline from Humble Oil, Standard of Louisiana and 2 other companies. When the contract was signed Standard of New Jersey and its subsidiaries could produce 13,000 barrels of 100-octane gasoline per day. As noted, at that time expansion was already underway to increase production to 16,000 barrels per day. Standard of New Jersey estimated that additional planned expansion projects would cost \$50 million. Under the contract, Standard of New Jersey pledged to increase production to 37,000 barrels a day by March 1, 1943.²⁷⁸

Part 4 of the contract dealt with price and payment. From the date of the contract through February 29, 1944, the DSC would pay a base price of \$0.13 per gallon. From March 1, 1944, through February 28, 1946, (when the contract expired) Standard of New Jersey would receive a base price of \$0.12 for each gallon of 100-octane aviation gasoline. Standard of New Jersey agreed not to take more than 10% annually for “depreciation, amortization, and obsolescence” except on the \$14.4 million that the DSC would advance the company, per terms of the contract. Part 5 of the contract contained a price escalation clause and part nine discussed deliveries and

²⁷⁶ Civilian Price Administration, Alphabetic Listing of Major War Supply Contracts, Cumulative June 1940 through September 1945 (Civilian Price Administration, Industrial Statistics Division), Volume 4, Rey-Z, pp. 2949-51.

²⁷⁷ C. Smith to W. Gary, 11/18/1941, BAYHIS-00003759-66.

²⁷⁸ Standard of New Jersey and its subsidiaries sold aviation gasoline to the government, as well as other buyers. Agreement between Defense Supplies Corporation and Standard Oil Company of New Jersey, 100-Octane Aviation Gasoline, 1/13/1942, MIS-00022185-210. On January 6, 1942, the DSC was authorized to make advance payments to four manufacturers of 100-octane aviation gasoline, including Standard of New Jersey. J. Jones to H. Mulligan, 1/6/1942, MIS-00003137. In an amendment to the contract signed in May 1944, the parties agreed to lower base prices. See G. Hill to Gentlemen, 5/15/1944, MAA_EM-000007; and Amending Agreement, 5/15/1944, MAA_EM-000008-16.

inspections. Similar to the Humble-DSC contract, the Standard contract contained language that stated prices and the stated escalation provisions were for “normal” conditions. But, if the war disrupted those conditions, the price would change, and if necessary, an arbitrator would be consulted. Standard of New Jersey was required to provide certificates of inspection to “set forth the quality and quantity of each shipment of gasoline” from a licensed inspector. Also, as appeared in the Humble-DSC contract, Standard as the “[s]eller warrants full and unencumbered title to all gasolines delivered under this contract.”²⁷⁹

The day after the contract was signed, PAW Vice-Chairman Ralph Davies wrote Federal Loan Administrator Jesse Jones recommending that the DSC approve the contract. Davies noted that the construction required to increase production would require large amounts of steel, equipment, and instruments. In discussing the price, Davies wrote that they “are intrinsically low and are proper” suggesting that he believed the price fair to Standard and the DSC. After discussing the amortization of the \$14.4 million Davies stated, “The price quoted is a ‘negotiated price’ in which Jersey has balanced its hope of profit against its risk of loss . . . It has no assurance of profit and in spite of escalation clauses it has no guarantee against loss.”²⁸⁰

Several weeks after Standard of New Jersey signed the aviation gasoline contract, company president Chester Smith wrote the Office of Petroleum Coordinator and discussed the company’s program to expand aviation gasoline production. At Baton Rouge, Standard of New Jersey planned to build “[t]wo new 14,000 bbl./day gas oil feed catalytic cracking units and two 2,350 bbl./day alkylation units.” He also said that the company would convert catalytic cracking units then under construction at Baton Rouge and Baytown to the production of aviation gasoline base stock. Smith estimated that of a total investment of \$51,330,000, \$21,630,000 of which would be for Baton Rouge improvements and \$4,250,000 for Baytown improvements. Once the improvements were complete, Standard of Louisiana would manufacture an additional 9,300 barrels per day of aviation gasoline at Baton Rouge and Humble would manufacture 3,000 more at Baytown.²⁸¹

Production of other products continued at Baton Rouge just as such production continued at Baytown. In May 1943, it was estimated that about 33% of the refineries throughput was made into “critical war products.”²⁸²

²⁷⁹ Agreement between Defense Supplies Corporation and Standard Oil Company of New Jersey, 100-Octane Aviation Gasoline, 1/13/1942, MIS-00022185-210. For more on the contract and the price of aviation gasoline, see Petroleum Administration for War, Reasonableness of Price Quoted, 9/10/1944, MAA_EM-000339-58. On page 4 of this document, it is noted that Standard was able to accelerate depreciation on 50% of the \$14.4 million the first year and 25% each of the next two years.

²⁸⁰ R. Davies to J. Jones, 1/14/1942, MIS-00022211-13.

²⁸¹ C. Smith to B. Brown, 2/4/1942, MAA_EM-001476-77.

²⁸² B. Brown, Major War Projects, Baton Rouge Refinery, Standard Oil Company of Louisiana, Prepared for War Agencies Joint Inspection Trip, 5/30-31/1943, BRC-00011607-40, at BRC-00011613. From September 1942 through June 1945, the PAW published information on refinery output. Information for products produced at Baton Rouge is in Appendix 3.2.

D. Standard's Use of Necessity Certificates at Baton Rouge

During World War II, Standard applied for at least 8 Necessity Certificates with a total value exceeding \$43 million. Archival records show that the company received 6 of the certificates valued at \$42.5 million.²⁸³ Of that amount, almost \$30 million involved equipment for the production of aviation gasoline. Standard operated several of the Necessity Certificate-financed additional facilities in conjunction with the DPC-financed facilities. Some of the expenditures included in the Necessity Certificates funded purchases that Standard had made to expand aviation gasoline production prior to signing its first DPC contract in August 1941 or the General Aviation Gasoline Contract in January 1942.²⁸⁴ Numerous items are included in the company's Necessity Certificate applications including buildings, equipment, and infrastructure improvements. The Necessity Certificates that Standard received covered 3 areas: aviation gasoline production, chemical and synthetic rubber production, and the construction of an alcohol plant. The aviation gasoline production was the most important of the 3 areas in terms of accelerated depreciation.

1. Chemical and Synthetic Rubber Production: Necessity Certificates WD-N-3422 and WD-N-14132

Standard first applied for what would become Necessity Certificate WD-N-3422 in August 1941. As described in a letter from M. Rathbone, President of Standard, to the Secretary of War in March 1942, the company desired accelerated depreciation for facilities for the production of "Chemical Raw Materials and Synthetic Rubber." The application covered the production of perbunan rubber, butyl rubber, and chemicals. Initially, the company requested permission to depreciate more than \$12 million, but because of transfer of the butyl rubber plant to Plancor 572, Standard reduced the request to \$9.35 million. Nearly the entire amount was for the "Chemical Raw Materials Manufacture" comprised of a gas manufacturing plant (\$4,840,000); auxiliary cracking furnace (\$55,000); butadiene extraction plant (\$675,000); and general facilities (\$3,275,000). In addition to serving the chemical raw materials plant, the general facilities would "serve the No. 1 Butyl Rubber Plant. This plant and part of the attendant general service facilities [had] been acquired by the Government as part of Plancor 572," however, Standard retained a portion of the general facilities valued at \$83,000.²⁸⁵

In November 1942, Standard applied for a Necessity Certificate to "SUPPLY RAW MATERIALS TO, and DISPOSE OF BY-PRODUCTS FROM new Defense Plant Corporation-owned plants designated as Plancor 152, Plancor 572, and Plancor 1065 . . . for the production of BUTADIENE, BUTYL RUBBER, and TOLUENE respectively [sic]."²⁸⁶ The Necessity

²⁸³ See Appendix 1.2 for a list of the Necessity Certificates. Standard likely received approval for all eight Necessity Certificates.

²⁸⁴ Application for a Necessity Certificate, 4/21/1943, WD-N-27023, US-BR001155-66.

²⁸⁵ Rathbone to the Secretary of War, Revised Appendix A, 3/26/1942, US-BR001105-7; and Appendix A, Revision II, 4/8/1943, US-BR0001108-11.

²⁸⁶ Application for a Necessity Certificate, 11/23/1942, WD-N-14132, US-BR001139-54.

Certificate would cover multiple items including numerous pipelines, pumps, control instruments, office buildings and furniture, a hospital building and equipment, a mechanical shop and tools, and road work. Standard also stated that:

The pipe lines and pumps will supply process gas oil, aromatic distillates for production of toluene and isoprene, butylenes for butyl rubber and butadiene manufacture, and dispose of spent naphtha, polymer, slop oil and butylenes streams to the applicant's refinery. Utilities and chemicals such as river water, fuel oil, and caustic soda will also be supplied by these pipe lines.²⁸⁷

Between Necessity Certificates WD-N-3422 and WD-N-14132, Standard received approval to accelerate depreciation on \$10,129,500 worth of infrastructure improvements, tools, and buildings.

2. Aviation Gasoline Production: Necessity Certificates WD-N-6410, WD-N-8792, WD-N-27023, NC-1341, and NC-1526

Standard applied for 5 Necessity Certificates to expand its capacity for the production of aviation gasoline, totaling nearly \$30 million. Necessity Certificate WD-N-6410 was by far the most valuable Necessity Certificate that Standard applied for and received with an amended value exceeding \$27.5 million.²⁸⁸ The company filed the original application in mid-January 1942 at a time when Standard Oil of New Jersey and the DSC were negotiating the General Aviation Gasoline Purchase Contract. The application noted that fact:

Production is pursuant to the contract being made between Defense Supplies Corporation and Standard Oil Company of New Jersey . . . under which the latter corporation will sell to the former 100-octane aviation gasoline, including that manufactured by its own facilities, and also that purchased from this applicant and others. It is contemplated that this applicant will also contract Defense Supplies Corporation . . . as to certain portions of applicant's 100-octane aviation gasoline production.²⁸⁹

The original application was for \$21.6 million. In March 1943, the government approved an amendment that brought the total to \$27,538,000.²⁹⁰ Among the items included in the original application were desalting facilities, a crude pipe still, a catalyst cracking plant, various alkylation facilities and plants, hydrogenate codimer facilities, and other types of facilities and plants.²⁹¹

²⁸⁷ Application for a Necessity Certificate, 11/23/1942, WD-N-14132, US-BR001139-54.

²⁸⁸ Application for a Necessity Certificate, 1/12/1942, WD-N-6410, US-BR001112-29; and Application for a Necessity Certificate, 1/12/1944, NC 1526, US-BR001079-1104, at US-BR001084.

²⁸⁹ Application for a Necessity Certificate, 1/12/1942, WD-N-6410, US-BR001112-29.

²⁹⁰ Application for a Necessity Certificate, 1/12/1942, WD-N-6410, US-BR001112-29; and Application for a Necessity Certificate, 1/12/1944, NC 1526, US-BR001079-1104, at US-BR001084.

²⁹¹ Application for a Necessity Certificate, 1/12/1942, WD-N-6410, US-BR001112-29.

Between May 1942 and January 1944 Standard applied for 4 more Necessity Certificates for equipment and other items necessary for the production of aviation gasoline components. In May 1942, Standard applied for Necessity Certificate WD-N-8792 for \$389,000 to accelerate depreciation on gas handling equipment. This equipment was necessary because the refinery's catalytic cracking unit created excess gas while producing aviation gasoline blending components.²⁹²

When Congress passed the Second Revenue Act of 1940, it allowed for accelerated depreciation on any purchases dating back to June 10, 1940, when Congress first considered such a program. Congress later changed that date to January 1, 1940.²⁹³ Thus, in September 1943, Standard applied for Necessity Certificate WD-N-27023 to cover part of the cost of the alkylate plant that the company had constructed in 1939 and 1940. The company built the plant with excess capacity that was not used until after the United States entered the war. Actual construction started on September 15, 1939, and was completed on July 15, 1940. Standard estimated that just over 76% of the construction occurred between December 31, 1939, and June 11, 1940, which allowed the company to accelerate depreciation on \$1,262,653.67 worth of machinery, buildings, stills, tanks, pipes, and other unnamed facilities.²⁹⁴

In January 1944, Standard filed 2 Necessity Certificate applications for facilities associated with the production of aviation gasoline components. Necessity Certificate 1341, for \$275,000, was for equipment to manufacture additional isobutane used in the production of alkylate. The expansion of the facility would nearly double isobutane production from 245,800 barrels to 473,300 barrels per quarter. Necessity Certificate 1526 was to increase ethylene production for use in tetraethyl lead. Standard requested accelerated depreciation on \$447,213.50 worth of facilities and buildings.²⁹⁵

3. Alcohol Plant: Necessity Certificates WD-N-26295

In August 1943, Standard sought to accelerate depreciation on equipment used in the production of ethyl alcohol and isopropyl alcohol. Standard was producing both types of alcohol for other companies to use in war production. The Tennessee Eastman Corporation was a main customer. Ethyl alcohol's primary use was in film and plastics while isopropyl alcohol was used

²⁹² Application for a Necessity Certificate, 5/28/1942, WD-N-8792, US-BR001130-38; Application for a Necessity Certificate, 11/23/1942, WD-N-14132, US-BR001139-54, at US-BR001146.

²⁹³ 54 Stat. 974, 10/08/1940, at 998; 55 Stat. 757, 10/30/1941.

²⁹⁴ Application for a Necessity Certificate, 9/22/1943, WD-N-27023, US-BR001155-66. The amount that Louisiana sought to accelerate depreciation on was 76.7% of the total cost of the facility, which was \$1,645,026.84.

²⁹⁵ Application for a Necessity Certificate, 1/10/1944, NC-1341, US-BR001063-78; and Application for a Necessity Certificate, 1/12/1944, NC-1526, US-BR001079-104.

in the production of acetone, a component of explosives. Necessity Certificate WD-N-26295 allowed for accelerated depreciation on \$3,633,500 worth of equipment.²⁹⁶

E. The DPC at Baton Rouge

During World War II, representatives of the DPC and representatives of Standard signed 7 different DPC leases. One plancor, 1384, never moved beyond the planning stages. Of the remaining 6 plancors, 4 were engaged in the production of synthetic rubber or components of synthetic rubber. The DPC spent more than \$38 million on synthetic rubber and components at Baton Rouge. The DPC and Standard's original lease for the 5th Baton Rouge Plancor, 1065, was for toluene production. However, before it was completed it was redesigned to manufacture xylene for aviation gasoline. At the end of the war, Plancor 1065 was converted back to toluene production. Plancor 1868 was designed and leased as a hydrogenation plant for aviation gasoline. Altogether, the DPC financed almost \$46 million of work at the Baton Rouge site.²⁹⁷

Each plancor lease at Baton Rouge contained a clause that read that Standard would serve "as agent for Defense Corporation" while hiring contractors and engineers and assist them in plant design and construction. The DPC reserved the right to approve the subcontractors that Standard hired. Contractors would build each plancor according to designs provided by either Standard or the Standard Oil Development Company. Rubber Reserve and Standard signed operating agreements for each plancor in which Standard agreed to manage the plants for Rubber Reserve. The operating agreements often contained pricing clauses.

The leases for Plancors 572 and 1868 were unique from the other Baton Rouge DPC leases. Plancor 572 produced butyl rubber and Plancor 1868 manufactured hydrocodimer and C-S. Prior to the war, the Standard Oil Development Company, also a subsidiary of Standard of New Jersey, had successfully completed research and development work into the production of those chemicals. Standard had begun to construct a plant for their production. Under the terms of the two plancor leases, the DPC purchased the partially completed plant from Standard illustrating the government's reliance on private expertise for synthetic rubber production.

1. Plancor 152 (Butadiene)

In a reflection of the importance of synthetic rubber to the nation's defense, Standard and the DPC signed the initial agreement for what became Plancor 152 on August 23, 1941, just over three months before the Japanese bombed Pearl Harbor. Two amendments to the Plancor 152 agreement pushed the total DPC expenditure to more than \$9.5 million. The purpose of Plancor 152 was the production of 15,000 short tons of butadiene (a component of synthetic rubber) per year.²⁹⁸ Plancor 152 was located in the northwest corner of the area where most of the Baton

²⁹⁶ Application for a Necessity Certificate, 8/16/1943, WD-N-26295, US-BR001167-1179. Information on the number of the Necessity Certificate for the alcohol plant is drawn from Application for a Necessity Certificate, 1/10/1944, NC-1341, US-BR001063-78, at US-BR001070.

²⁹⁷ See Appendix 2.2 for a listing of the Baton Rouge DPC contracts and amendments.

²⁹⁸ Agreement of Lease Standard Oil (butadiene), 8/23/1941, BRHIS-00001165-73; Agreement Amending Agreement of Lease, Plancor 152, Standard Oil, (Butadiene) Amendatory #1, 2/21/1942, BRHIS-00001097-1100; Agreement Amending Agreement of Lease, Plancor 152, Standard Oil,

Rouge placors were located. To the south of Plancor 152 was the Montesano Bayou and to the east was the Copolymer Corporation.²⁹⁹

Under the terms of the DPC agreement, Standard agreed to serve as an “agent” for the DPC in the execution and oversight of the necessary construction contracts to build the butadiene plant. Standard Oil Development Company was “to prepare and deliver . . . process designs and process and mechanical specifications” to the DPC for a plant capable of producing 15,000 short tons of butadiene per year. Standard Oil Development Company further agreed:

(3) to act as technical consultant for Defense [Plant] Corporation’s designated contractor, to assist such contractor (a) in fully understanding the intended functions of all parts of the said plant; (b) in selecting equipment (including review of competitive bids secured by said contractor on individual pieces of equipment); and (c) in checking field installation of said equipment;

(4) to check and certify for Defense [Plant] Corporation charges of Defense [Plant] Corporation’s designated contractor for said plant.³⁰⁰

The E. B. Badger and Sons Company built Plancor 152, “all in accordance with the process designs and specifications to be furnished by Standard Oil Development Company.” Construction started on May 1, 1942, and under the second DPC amendment, the parties agreed to extend the completion date to June 1, 1943. Machinery at Plancor 152 was first used in mid-April 1943, and the original plant started production on May 26, 1943. Workers completed the extraction and rerun portions of the plant in September and full operation started on September 15, 1943.³⁰¹ In May 1943, a representative of the Bureau of the Budget visited the plant and estimated daily production at 41 short tons.³⁰² This figure was consistent with the projected annual production of 15,000 short tons annually.

(Butadiene) Amendatory #2, 4/30/1943, BRHIS-00001101—1104; and Interim Synopsis Plancor No. 152, 10/1/1944, US-BR000335-39. As did the DPC leases at Baytown, the DPC-Standard lease for Plancor 152 contained language that required Standard to acquire insurance policies. Additional language indemnified the United States against personal injury during construction and operation of the plant at BRHIS-00001169-70.

²⁹⁹ Chemical Products Division, ESSO Standard Oil Co., LA. Div., 8/1/1949, BRC-00000016-27, at BRC-00000019.

³⁰⁰ Agreement of Lease Standard Oil (butadiene), 8/23/1941, BRHIS-00001165-73.

³⁰¹ Defense Plant Corporation to W. L. Drage, 9/27/1944, US-BR000355-78. Standard Oil Development Company Memorandum, 9/5/1942. This memorandum explained the process for manufacturing butadiene, US-BR000500-04.

³⁰² Executive Office of the President, Bureau of the Budget – War Projects Unit, 5/27/1943, BRHIS-00001105-12.

Plancor 152 also included a steam plant that, in time, provided steam for Plancors 152, 572, 876, 1065, and 1526 for heating and “processing purposes.”³⁰³ Work on the steam plant site started in July 1942 and was completed in May 1943 when the butadiene plant began operating.³⁰⁴

Plancor 152 was built on 2 parcels of land comprised of 39.258 acres. The first parcel, where the main plant was located, was 35.96 acres. Of that acreage, 9.75 acres was the site of Plancor 876 that the Firestone Tire and Rubber Company operated. The second parcel of land was 3.298 acres and was the location of the Plancor 152 steam plant.³⁰⁵ There were 25 buildings at Plancor 152. The DPC classified 11 as “principal buildings,” and the remainder as “minor buildings or sheds.”³⁰⁶

According to the DPC, there were no DPC-owned machine tools or metal shaping tools at Plancor 152. A DPC report stated:

production equipment consists, in general, of a series of tanks, vessels, mixers, kettles, filters, heaters, dryers, conveyors, pumps, hoppers, traps, mills, compressors, condensers, coolers, disintegrators, scales, columns, chutes, decanters, molds, and allied apparatus.³⁰⁷

There also were approximately 20 pieces of laboratory and testing equipment and nearly 500 pieces of office furniture and office equipment at Plancor 152.³⁰⁸

Under the March 19, 1942, operating agreement between Standard and Rubber Reserve, the government would pay for all of Standard’s costs dating to August 23, 1941, including salaries and wages for plant preparations, as well as “the management, operation, occupancy, repair or maintenance of the Plant . . . and fees for services of technical, consultant-engineering or other professional experts.”³⁰⁹

Other expenses that Rubber Reserve agreed to pay included those for all facilities, tools, machines, and similar items. Rubber Reserve further agreed to pay “all taxes, licenses, fees, or other charges levied by any competent governmental authority,” including the employer’s Social Security contribution. Finally, Rubber Reserve agreed to pay all “[f]ederal, state or local taxes,

³⁰³ Interim Synopsis Plancor No. 152, 10/1/1944, US-BR000335-39; and Interim Synopsis Plancor No. 572, 10/1/1944, US-BR000744-48.

³⁰⁴ DPC to W. Drage, 9/27/1944, US-BR000355-78.

³⁰⁵ Interim Synopsis Plancor No. 152, 10/1/1944, US-BR000335-39; and Interim Synopsis Plancor No. 572, 10/1/1944, US-BR000744-48.

³⁰⁶ Interim Synopsis Plancor No. 152, 10/1/1944, US-BR000335-39.

³⁰⁷ Interim Synopsis Plancor No. 152, 10/1/1944, US-BR000335-39.

³⁰⁸ Interim Synopsis Plancor No. 152, 10/1/1944, US-BR000335-39.

³⁰⁹ Rubber Reserve Company and Standard Oil Company of Louisiana, Operating Agreement, 3/19/1942, BRHIS-00001360-91.

assessments or charges” that Standard was required to pay other than net income or excess profit taxes, provided that the charges were levied during production at Plancor 152 or within 5 years “pursuant to the Unemployment Compensation Act of any state.”³¹⁰ Although under the DPC lease Standard agreed to serve as an agent for the DPC, the operating agreement explicitly stated that nothing in the agreement “shall be construed as appointing Contractor as agent of or for Reserve.”³¹¹

Pursuant to the operating agreement, Rubber Reserve purchased the butadiene produced at Plancor 152 pursuant to an agreement signed with Standard on March 19, 1942. Under the terms of the agreement, Standard was to “undertake all preparations necessary for the subsequent operation of the Plant for the production of butadiene.” Standard also was to notify the government when the plant was ready for commercial production. Under the March 19, 1942, agreement Rubber Reserve was to pay Standard for butadiene on a sliding scale. Rubber Reserve and Standard agreed to change the price scale in 3 amendments dated January 7 and February 1, 1943. Under the February 1, 1943 scale, the amount the government paid for butadiene was a fixed price with Standard receiving \$0.0075 per pound for the first 15,000 tons per year. For the next 5,000 tons, the cost per pound dropped to \$0.0065 and the price dropped further for each subsequent increment of 5,000 tons. However, the cost for any butadiene produced in excess of 45,000 short tons per operating year was set at \$0.0035 per pound.³¹²

On December 7 and 8, 1943, a Bureau of the Budget representative again visited Plancor 152 and filed a report the next day. He estimated that plant capacity at the time of his visit was 18,000 short tons of butadiene yearly. Since the plant started production, the following amounts of butadiene had been produced as listed in Table 3.1.

³¹⁰ Rubber Reserve Company and Standard Oil Company of Louisiana, Operating Agreement, 3/19/1942, BRHIS-00001360-91.

³¹¹ Rubber Reserve Company and Standard Oil Company of Louisiana, Operating Agreement, 3/19/1942, BRHIS-00001360-91.

³¹² Rubber Reserve Company and Standard Oil Company of Louisiana, Operating Agreement, 3/19/1942, BRHIS-00001360-91; Rubber Reserve Company and Standard Oil Company of Louisiana, Amendatory Agreement, 1/7/1943, US-BR004360-33; and Rubber Reserve Company and Standard Oil Company of Louisiana, Amendatory Agreement, 2/1/1943, US-BR004292-311.

Table 3.1

Plancor 152 Butadiene Production: May-November 1943 in Short Tons

Month	Scheduled Production	Actual Production	Cost to Produce per Pound
May	1,250	510	\$0.1307
June	1,250	1,459	\$0.1353
July	1,250	1,263	\$0.1585
August	1,250	1,132	\$0.1636
September	1,250	1,932	\$0.1204
October	1,250	1,434	\$0.1375
November	1,250	1,940 (unofficial)	---
Total	8,750	9,670	

Standard supplied the finished butadiene via pipeline from Plancor 152 to Plancor 876, the copolymer plant operated by the Firestone Tire and Rubber Company. The Bureau of the Budget report also noted, “[t]he original unreacted feed is returned partly unused to the Refinery.” Plancor 152 received stock from Standard’s refinery through pipelines, which the Bureau of Budget representative noted was sufficient as long as the refinery was operating. The Bureau of the Budget representative reported that workers at Plancor 152 were members of the Independent Association of Refinery Employees. Special training facilities for new employees were not needed, as the facilities of Standard of Louisiana were available for training.³¹³

Standard continued to operate Plancor 152 for the remainder of the war and then until August 1947. Statements regarding production volumes for Plancor 152 varied. One document states that total butadiene produced during the first period of operation, from May 21, 1943, to August 6, 1947, amounted to 73,273 gross tons. Another document puts production for calendar years 1943 through 1947 at 83,832 short tons.³¹⁴ According to Standard, 60% of Rubber Reserve’s wartime synthetic rubber program depended on the successful operation of Plancor

³¹³ Executive Office of the President, Bureau of the Budget – War Projects Unit, 12/9/1943, BRHIS-00001114-21. A discussion of what the refinery sent to Plancor 152 and what Plancor 152 returned to the refinery is contained in Standard Oil Development Company Memorandum, 9/5/1942, US-BR000500-04. See also, Executive Office of the President, Bureau of the Budget-War Products Unit, 5/27/1943, BRHIS-00001105-12.

³¹⁴ Chemical Technical Service, Progress Report of Chemical Products Division Activities, Baton Rouge, Louisiana, August, 1947, BRC-00010710-29, at BRC-00010726. Adding the individual runs on Table No. D-II for butadiene production amounts to 83,892.5 rather than the 73,273 gross tons recorded in the total or average column and Rubber Reserve, Schedule XI – Production Records, Recapitulation of Butadiene Production, MISC-00009570-72, at MISC-00009572.

152. When Plancor 152 was shutdown in August 1947, the RFC transferred the steam plant to Plancor 572. Standard's lease and operating agreements were canceled on June 30, 1948. In September 1950, the parties' maintenance protection agreement was canceled.³¹⁵ On September 20, 1950, the RFC and the Copolymer Corporation reached an agreement for the lease and operation of the plant, which lasted until the sale of the plant to Copolymer on April 21, 1955. Total production for fiscal year 1951 was 5,527 short tons; fiscal year 1952 was 27,317 short tons; fiscal year 1953 was 26,036 short tons.³¹⁶

2. Plancor 572 (Butyl)

Plancor 572 started as a private endeavor of Standard. In early 1941, Standard began construction on a plant that would produce 10 tons of butyl rubber per day. After the Japanese moved into Southeast Asia, cutting off the United States' traditional sources of natural rubber, synthetic rubber production became an even greater national priority. In February 1942, Rubber Reserve and Standard initiated discussions for construction of additional facilities for butyl rubber production. The DPC and Standard signed an agreement on April 20, 1942, for what became Plancor 572. They amended the agreement 4 times. As part of the agreement, the DPC agreed to purchase Standard's incomplete plant, furnish money for its completion, and fund 2 more units that along with the first would produce 40,000 long tons of butyl rubber each year. The total cost was not to exceed \$29 million.³¹⁷ Plancor 572 was also located in the area north of the Baton Rouge Refinery.³¹⁸

³¹⁵ Brief History of Chemical Products Division, 5/1/1951, BRC-00000016-27; and J. White to K. Kelly, 3/16/1954, BRC-00000695-96. The transfer of the steam plant from Plancor 152 to Plancor 572 occurred on May 12, 1948. The estimated value of the steam plant at the time of transfer was \$1,398,895.17. See, Memorandum to G. I. Irwin, Plancor 572, 12/15/1955, US-BR005349-71.

³¹⁶ Memorandum to G. I. Irwin, Plancor 152, 12/5/1955, BRC-00006963-82, at BRC-00006979-80; Rubber Producing Facilities Disposal Commission, 11/1953, "Government-owned Synthetic Rubber Facility, Plancor 152, Baton Rouge, LA," BRC-00007021-54, at BRC-00007051. Initially, Plancor 152 was designed with a capacity of 15,000 short tons per year, however, by November 1953, the capacity had been increased to 23,000 short tons per year, *ibid.*, at BRC-00007025. On August 31, 1961, Copolymer Rubber and Chemical Corporation wrote to the Federal Facilities Corporation to notify that agency of an increase in production capacity from 23,000 short tons to 55,000 short tons per year. P. Carpenter to Federal Facilities Corporation, 8/31/1961, BRC-00007019. A General Services Administration memorandum dated June 17, 1964, indicates this capacity may have been increased to 66,000 short tons annually, M. Hamm to File, 6/17/1964, BRC-00007002.

³¹⁷ Defense Plant Corporation and Standard Oil Company of Louisiana, Agreement of Lease, 4/20/1942, BRHIS-00015858-68; Defense Plant Corporation and Standard Oil Company of Louisiana, Agreement Amending Agreement of Lease, Amendatory Agreement #1, 2/3/1943, BRHIS-00015950-53; Defense Plant Corporation and Standard Oil Company of Louisiana, Agreement Amending Agreement of Lease, Amendatory Agreement #2, 8/11/1943, BRHIS-00015973-76; Defense Plant Corporation and Standard Oil Company of Louisiana, Agreement Amending Agreement of Lease, Amendatory Agreement #3, 12/6/1943, BRHIS-00016038-40; Defense Plant Corporation and Standard Oil Company of Louisiana, Agreement Amending Agreement of Lease, Amendatory Agreement #4, 5/11/1944, BRHIS-00016041-43; Defense Plant Corporation and Standard Oil Company of New Jersey, Agreement Amending Agreement of Lease, Amendatory Agreement #5, 3/17/1945, BRHIS-00016046-48; Engineer's Final Report, Plancor No. 572, 6/30/1945, US-BR000749-75; and Engineer's Final Report, Plancor 572,

As with other Standard-DPC leases, Standard agreed to serve “as agent for the Defense Corporation” in the employment of contractors and engineers with DPC written approval for the construction of Plancor 572. Standard was also to enter into a contract with the Standard Oil Development Company for “process designs and process and mechanical specifications,” and “to act as technical consultant for Defense Corporation’s designated contractor.” Standard Oil Development Company was also “to check and certify” the contractor’s charges for the DPC. Standard also agreed to take out insurance policies on buildings, machinery, and equipment, and hold the United States harmless in the event of personal injury at the plant.³¹⁹

Based on the success of research at Standard of New Jersey’s butyl rubber pilot plant in Bayway, NJ, it was initially thought the yearly production amount at Baton Rouge could be increased to 72,000 tons, although that proved not to be the case. Under the April 20, 1942 agreement, Standard would lease the plant for 5 years from the plant’s date of completion. The scarcity of construction material slowed work on the 3rd unit of Plancor 572 and it was not completed until November 1943. Unsatisfactory results from unit 3 led to an agreement between the DPC and Standard under which Standard Oil Development Company agreed to conduct experimental work in an attempt to improve production. The experimental period lasted from September 6, 1943, to June 1, 1944.³²⁰

On July 9, 1942, Rubber Reserve and Standard signed an operating agreement for Standard to operate Plancor 572. In the contract’s declarations, the parties agreed that Standard would operate the plant for 5 years and would produce 40,000 long tons per year of butyl rubber. Section 1 of the contract stated that the contractor would “undertake all preparations necessary for the subsequent operation of the Plant for the production of Butyl rubber.”³²¹ As outlined in section three of the contract, Rubber Reserve would compensate Standard for butyl rubber production on a cost-plus-fixed fee basis. However, the fixed-fee amount was on a sliding scale based on yearly production amounts. Rubber Reserve would pay \$0.015 per pound for the first 15,000 long tons of butyl; \$0.0125 for the next 15,000 long tons; \$0.01 for the third 15,000 long ton increment of butyl; and \$0.0085 per pound for the fourth 15,000 tons of butyl rubber.

Interim Synopsis, Plancor No. 573, October 1, 1944, US-BR000743-48. The DPC did not buy the 39.28 acres of land on which Plancor 572 was located until April 1943. See, Cash Sale Standard Oil Company of Louisiana to Defense Plant Corporation, 4/27/1943, US-BR000777-84.

³¹⁸ Layout of Plants, Chemical Products Div., Standard Oil of La., 12/9/1942, BRC-00022710. Also see, Synthetic Rubber Plant, Butyl Type, Baton Rouge, Louisiana, Plancor 572, US-BR000653065.

³¹⁹ Agreement of Lease, Standard Oil of Louisiana (Butyl Rubber) Plancor 572, 4/20/1942, BRHIS-00015858-68.

³²⁰ Engineer’s Final Report, Plancor No. 572, Standard Oil of New Jersey (LA. Division) North Baton Rouge, Louisiana, 6/30/1945, US-BR000749-75.

³²¹ Rubber Reserve Company and Standard Oil Company of Louisiana, Operating Contract, 7/9/1942, US-BR003857-89. Section one of the contract stated that Standard would not serve as an agent of the Rubber Reserve Company under any section of the contract.

Rubber Reserve would pay \$0.007 per pound for any production in excess of 60,000 long tons per year.³²²

Under the terms of the operating agreement, Rubber Reserve agreed to pay Standard \$1,480,000 for construction of facilities in the refinery area that would contribute to increased production of butyl rubber components. Rubber Reserve also agreed to pay for most costs associated with butyl rubber production including, but not limited to: salaries, wages, and all “welfare and employee-relation plans” that Standard maintained. Rubber Reserve further agreed to pay taxes, licenses, and fees that Standard incurred while performing work outlined in the contract and for 5 years thereafter “pursuant to the unemployment compensation act of any state.” Standard also would receive payment for the cost of all isobutylene that it furnished to Plancor 572.³²³

The date that Plancor 572 started operation is somewhat uncertain. According to a DPC engineers’ report from June 1945, the first unit at Plancor 572 started operations in December 1942.³²⁴ Another document gives December 5, 1942, as the date that 1 of the isobutylene extraction units started operating, followed by 1 unit of the polymerization section on January 6, 1943, with the first delivery of butyl rubber taking place on March 12, 1943.³²⁵ An engineer’s report from October 1944 noted that only 2 of the 3 units were in operation and that production was only 50% of the amount called for in the contract.³²⁶

On February 3, 1943, Rubber Reserve and Standard signed a supplemental contract that addressed both the amount of butyl rubber to be produced at Plancor 572 and Standard’s operation of the plant. Under the amended agreement, Standard would produce 72,000 long tons of butyl rubber at Plancor 572 annually. The amendment also addressed the amount of isobutylene that Standard would provide for butyl rubber production and noted that the volume provided depended on the quantity of crude oil processed at the refinery, the amount of motor gasoline manufactured, steam cracking operations at the refinery, and the “continuance of the quick butadiene program in [the] Contractor’s refinery.” If Standard was unable to supply the required isobutylene for Plancor 572, Rubber Reserve agreed to provide isobutylene to cover any

³²² Rubber Reserve Company and Standard Oil Company of Louisiana, Operating Contract, 7/9/1942, US-BR003857-89. Per contract, a long ton is 2,240 pounds.

³²³ Rubber Reserve Company and Standard Oil Company of Louisiana, Operating Contract, 7/9/1942, US-BR003857-89. Per contract, a long ton is 2,240 pounds.

³²⁴ Engineer’s Final Report of Reconstruction Finance Corporation, Office of Defense Plants, An Instrumentality of the U.S. Government, Plancor No. 572, Standard Oil of New Jersey (LA. Division) North Baton Rouge, Louisiana, June 20, 1945, US-BR000749-75.

³²⁵ Price Waterhouse & Company, Report on Examination, 6/30/1943, BRHIS-00009426-441, at BRHIS-00009427; Standard considered March 12, 1943, the effective beginning date of the operating year. Another document gives the date of first production as March 6, 1943. See Appraisal Report as of 12/31/1952, Butyl Rubber Plant, SR 15, Baton Rouge, Louisiana, BRC-00001915-51, at BRC-00001923.

³²⁶ Engineer’s Final Report, Plancor 572, Interim Synopsis, Plancor No. 572, 10/1/1944, US-BR000743-48.

shortfalls.³²⁷ However, production of 72,000 long tons per year was unrealistic and in August 1943 another agreement set the annual production at Plancor 572 to 38,000 long tons per year.³²⁸

An interim DPC report dated October 1, 1944, provides additional information about Plancor 572. As of that date, the DPC had authorized \$25.12 million for the plant. The report noted that the plant was designed for the production of butyl rubber and could not easily be converted for other types of production. The plant site consisted of 39.28 acres for which the DPC had authorized \$31,000. There were 23 buildings on the site. As with Plancor 152, there were no machines, miscellaneous metal forming tools, or portable tools. Plancor 572 essentially consisted of, “tanks, vessels, mixers, kettles, filters, heater dryers, conveyors, pumps, hoppers, traps, mills, compressors, condensers, coolers, disintegrators, scales, columns, chutes, decanters, molds, and allied apparatus.” The plant used “gaseous products furnished by the Lessee’s oil refinery” for the production of butyl rubber.³²⁹

Completion of Plancor 572 occurred on June 7, 1945, about a month after Germany’s surrender. Shortages of critical materials attributed to the slowness in construction. However, Standard did keep 1 or 2 units in continuous operation from the start of production in December 1942. A document dated December 31, 1945, placed the total cost of Plancor 572 at \$25,100,448.81.³³⁰

The government continued to own the facilities that comprised Plancor 572 for nearly 10 years after the end of World War II. At the end of 1945, the RFC assumed administration of the plant from the DPC. Standard’s operation of the plant continued on a cost-plus-fixed-fee basis under the terms of the March 1, 1943 operating agreement, as amended, until Standard purchased the plant on April 21, 1955.³³¹

Standard’s production at Plancor 572 after World War II was somewhat sporadic. Production from all three units continued until June 30, 1947, at which time one unit was shut down. Two units continued to operate until mid-November 1949 when a second unit was shut down. In May 1950, Standard restarted the second unit and then in August 1950, Standard

³²⁷ Supplemental Contract, Standard Oil Company of Louisiana, 2/3/1943, US-BR003847-56.

³²⁸ Office of Rubber Reserve and Standard Oil Company of New Jersey, Amendatory Agreement, 10/10/1945, US-BR003811-38. The portion of the agreement requiring delivery of 38,000 long tons per year of butyl rubber was effective as of December 1, 1942.

³²⁹ Engineer’s Final Report, Plancor 572, Interim Synopsis, Plancor No. 572, 10/1/1944, US-BR000743-48.

³³⁰ Engineer’s Final Report, Plancor No. 572, 6/30/1945, US-BR000749-75; and Factual Appendix “A” Supplement No. 5, Reconstruction Finance Corporation – Office of Defense Plants, An Instrumentality of the U.S. Government, Plancor 572, Butyl Rubber Plants: Changes and Additions to Existing Equipment as of 12/31/1945, US-BR000657-68.

³³¹ Memorandum to G. I. Irwin, Plancor 572, 12/15/1955, US-BR005349-71.

returned the third unit to production. All three units remained in production until February 2, 1954, when one unit stopped production.³³²

After World War II production capacity increased and by November 1953 capacity was 47,000 long tons. Butyl production for fiscal years 1951, 1952, and 1953, was 23,876; 43,893; and 41,613 long tons respectively. Production of isobutylene amounted to 132,417,000 pounds in Fiscal Year 1953, while isoprene production was 8,139,000 lbs for that same year.³³³

With the Korean War over, Congress established the Rubber Producing Facilities Disposal Commission to oversee the disposal of government owned synthetic rubber plants. Negotiations ensued between commission members and Standard that resulted in a purchase agreement between the commission and Eastern States Standard Oil Company (ESSO). ESSO took possession of the plant on April 21, 1955.³³⁴ Production continued at the facility for at least a year or 2, if not longer. As of August 1956, 2 of the butyl plants were producing 40,000 tons annually and Standard was considering expanding capacity to 100,000 tons.³³⁵

3. Plancor 1065 (Toluene/Xylene)

On June 13, 1942, representatives of Standard and the DPC signed the agreement of lease for Plancor 1065. Under the terms of the lease, the U.S. agreed to pay \$1,421,150 for construction of a plant that would produce 7 million gallons of toluene per year. The agreement called on Standard to act as an “agent” for the DPC and in that capacity Standard was to enter into agreements with engineers and contractors for plant construction. The DPC would hold “[t]itle to the site, buildings, and [m]achinery.” Standard agreed to pay the DPC \$0.035 for each gallon of toluene produced, up to \$192,500 annually, in consideration of rent. The contract also

³³² Memorandum to G. I. Irwin, Plancor 572, 12/15/1955, US-BR005349-71. On May 12, 1948, the government transferred the steam plant at Plancor 152, valued at \$1,398,895.17, to Plancor 572. Beginning in 1947, various agreements were enacted with Standard to allow its private use of certain portions of the Plancor, including the extracting units, pipelines and storage tanks. See US-BR005354-58.

³³³ Rubber Producing Facilities Disposal Commission, 11/1953, “Government-owned Synthetic Rubber Facility, Plancor 572, Baton Rouge, LA,” BRC-00000700-40, at BRC-00000704, BRC-00000716, and BRC-0000737.

³³⁴ Memorandum to G. I. Irwin, Plancor 572, 12/15/1955, US-BR005349-71. The bill of sale between ESSO and the Rubber Producing Facilities Disposal Commission was signed on 4/21/1955, BRC-000001012-13. As noted in New Horizons over a number of years in the late 1940s, Standard of Louisiana was among a number of Standard affiliates that merged with Standard of New Jersey and took the parent company’s new name, Eastern States Standard Oil (ESSO), Larson, Knowlton, and Popple, New Horizons, MIS-00023443-930, at MIS-00023749.

³³⁵ G. Irwin, circa 8/23/1956, US-BR005589; and G. Irwin, circa 10/22/1957, US-BR005585. An undated article indicates that Standard may have taken steps to increase production capacity by 20,000 tons per year in 1960 and by an additional 18,000 tons per year in 1961, BRC-00001977.

contained provisions for Standard to purchase the facility upon termination of the lease.³³⁶ The government and Standard signed 5 lease amendments that brought the total amount financed for the plant to more than \$3.3 million.³³⁷

Plancor 1065 was situated on a 7.89-acre parcel of land north of the Standard Refinery at Baton Rouge in the area where most of the other Plancor facilities were located. To the south and north of Plancor 1065 was Plancor 152; although to the immediate north was the Montesano Bayou.³³⁸ A post-war document contains this description of the plant:

[b]uildings consist of a control house, 23'x54', one story, of brick and concrete, and foamite building, 14'x31', one story frame . . .

Typical refinery installations incorporating towers . . . columns, drums, heat exchanger, mixers, turbines, vaporizers, pumps, piping, control equipment, tanks, etc. Yard tankage consists of 5 large storage tanks, 7 small storage tanks, 2 vertical drums, pumps, and miscellaneous control equipment.³³⁹

In July 1942, Standard and the Ordnance Department signed a supply contract for toluene. In September 1943, before construction of the plant was completed, the Ordnance Department cancelled its supply contract with Standard. The Ordnance Department decided that Standard should operate the facility for the production of 100-octane aviation gasoline components and directed Standard to continue construction of the plant, but for the production of xylenes. In October 1943, Standard made a recommendation regarding plant usage for the

³³⁶ Defense Plant Corporation and Standard Oil Company of Louisiana, Agreement of Lease, 6/23/1942, BRHIS-00003016-28. The lease agreement for Plancor 1065 contained insurance and identification sections similar to Plancors 152 and 573.

³³⁷ Defense Plant Corporation and Standard Oil Company of Louisiana, Amendatory #1, Plancor #1065, Agreement Amending Agreement of Lease, 6/1/1943, BRHIS-00002917-19; Defense Plant Corporation and Standard Oil Company of Louisiana, Amendatory #2, Plancor #1065, Agreement Amending Agreement of Lease, 9/24/1943, BRHIS-00002920-23; Amended Agreement of Lease between Defense Plant Corporation and Standard Oil Company of Louisiana, 11/1/1943, BRHIS-00002884-99; Defense Plant Corporation and Standard Oil Company of Louisiana, Amendatory #4, Plancor #1065, Agreement Amending Agreement of Lease, 5/9/1944, BRHIS-00002870-83; Defense Plant Corporation and Standard Oil Company of Louisiana, Amendatory #5, Plancor #1065, Agreement Amending Agreement of Lease, 8/20/1945, BRHIS-00002867-69.

³³⁸ Defense Plant Corporation, "Toluene Plant, Baton Rouge, Louisiana, Plancor 1065," US-BR000168-73; and Preliminary Inspection Report, Plancor 1065, US-BR000289-94.

³³⁹ Samuel Rudolph and Associates, "\$6,000,000 Refinery Liquidation, Hydrogenation and High Octane Gasoline Plants," n.d., US-BR000262-277. Additional plant descriptions and valuations can be found in: War Assets Administration, Valuation Report, Plancors 1065 and 1868, Standard Oil Company of New Jersey, 5/26/1949, US-BR000182-86; Day and Zimmerman, Report No. 4557-D, Volume I, Valuation Report of Property Identified as Plancor 1065, Baton Rouge, Louisiana, 9/23/1946, US-BR000203-22.

production of aviation gasoline components, which the PAW accepted. In November, the PAW accepted Standard's modified plan.³⁴⁰

The PAW and Standard formally agreed to the operation of the plant in a letter agreement dated March 14, 1944, as referenced in the third lease amendment. Under the revised agreement, Standard would operate the plant subject to the Aviation Gasoline Reimbursement Plan, between the War and Navy Departments, PAW, and DSC that provided for aviation gasoline producers to recover any financial losses, subject to government approval, that occurred while manufacturing high-octane aviation gasoline.³⁴¹ Manufacturing of 100-octane aviation gasoline components began in May 1944 and lasted for one year.³⁴²

In February 1945, the situation regarding Plancor 1065 changed again. On February 17, 1945, the Ordnance Department notified Standard that an anticipate increase in demand for heavy artillery shells would contribute to a toluene shortage in 1945. Standard should therefore convert Plancor 1065 to toluene production. At the time, the production capacity for Plancor 1065 was 1,455 barrels of aviation gasoline components per day. With an expected conversion cost of \$300,000, the plant could produce 7.2 million gallons of toluene yearly starting on June 1, 1945.³⁴³

On May 9, 1945, the DPC and Standard signed the fourth lease amendment that called for the reconversion of the plant to produce 7 million gallons of toluene annually.³⁴⁴ On June 9, 1945, the War Department and Standard signed Supply Contract W-01-009-ORD-1117. Under the terms of the contract, the Ordnance Department would purchase 2.7 million gallons of toluene through the remainder of 1945 at a cost of \$1.185 million. The amount of production was to increase from 100,000 gallons in July to 290,000 gallons in August before tapering off at 580,000 gallons for each month from September through December.³⁴⁵ However, the Engineer's Final Report suggests that the conversion was not complete when the supply contract was signed

³⁴⁰ B. Brown to H. Klagsbrunn, 12/23/1943, and attached memorandum, US-BR005597-600.

³⁴¹ Defense Plant Corporation and Standard Oil Company of Louisiana, Amended Agreement of Lease, 11/1/1943, Revised 5/23/1944, BRHIS-00002884-99. See footnote 60 for citations to the Aviation Gasoline Reimbursement Plan.

³⁴² B. Brown to H. Klagsbrunn, 7/26/1944, and attached memorandum, US-BR005843-46; and Engineer's Final Report of Reconstruction Refinance Corporation, Office of Defense Plants, Plancor 1065, 12/31/1945, BRHIS-00000360-460, at BRHIS-00000369-70.

³⁴³ T. Gerber to Standard Oil Company of Louisiana, 2/17/1945, US-BR006077; and G. Estes to Defense Plant Corporation, Plancor #1065 - Request for Increase, 2/16/1945, BRHIS-00003526. Also see P. Slachman to Birmingham Ordnance District Office, 2/16/1945, US-BR006078-79.

³⁴⁴ Defense Plant Corporation and Standard Oil Company of New Jersey, Agreement Amending Agreement of Lease, 5/9/1945, BRHIS-00002870-83.

³⁴⁵ War Department and Standard Oil Company of New Jersey (Louisiana Division), Supply Contract W-01-009-ORD-1117, 6/9/1945, US-BR005777-97.

and that production did not resume before the project was cancelled.³⁴⁶ On August 7, 1945, the Ordnance Department requested that the plant be placed in standby and noted that Standard would be reimbursed for its costs.³⁴⁷

The War Assets Administration declared Plancor 1065 surplus on November 21, 1946. In July 1949, Samuel Rudolph and Associates purchased the facility along with Plancor 1868.³⁴⁸ Part of Plancor 1065 was then sold to the firm of Pass and Franklin in April 1950. However, in October 1950, Standard acquired the site and facilities of Plancor 1065.³⁴⁹

4. Plancor 1355 (Butadiene)

The DPC and Standard signed a lease for Plancor 1355 on January 28, 1943. Two amendments signed during the war brought the total cost of Plancor 1355 to \$1,812,987. The original agreement was for 5 years from completion of the facilities. The lease for Plancor 1355 contained language similar to language in other Baton Rouge plancor leases including indemnification and insurance requirements.³⁵⁰ A third amendment signed in March 1948 extended the agreement to June 30, 1950.³⁵¹ Plancor 1355 was located on 2 parcels of land within the Baton Rouge Refinery area.³⁵²

³⁴⁶ Engineer's Final Report of Reconstruction Refinance Corporation, Office of Defense Plants, Plancor 1065, 12/31/1945, BRHIS-00000360-460, at BRHIS-00000370 and BRHIS-00000458.

³⁴⁷ G. Smith to Reconstruction Finance Corporation, 8/7/1945, US-BR006062; Standard of New Jersey and the RFC signed the fifth and final amendment that provided another \$233,000 for plant costs. See, Reconstruction Finance Corporation and Standard Oil Company of New Jersey, Agreement Amending Agreement of Lease, 8/20/1945, BRHIS-00002867-69.

³⁴⁸ War Assets Administration, Declaration of Surplus Property, 7/28/1948, US-BR000069; and I. Gumbel to W. Wallace, 1/5/1950, US-BR000083.

³⁴⁹ J. Larson to L. Johnson, 10/13/1950, BRC-00003396-4000; and W. Holcombe to O. Boatwright, 1/9/1951, US-BR000323. Also, see H. Voorhies to RFC, 6/2/1953, BRC-00003876-77. Additional information on the sale of the plant to Samuel Rudolph and Associates, with subsequent resale to Pass and Franklin can be found at T. Peyton to H. Plummer, 6/19/1953, BRC-0008790-96.

³⁵⁰ Defense Plant Corporation and Standard Oil Company of Louisiana, Agreement of Lease, 2/18/1943, BRHIS-00015355-67; Defense Plant Corporation and Standard Oil Company of Louisiana, Agreement Amending Agreement of Lease, 1/6/1944, BRHIS-00015445-52; and Defense Plant Corporation and Standard Oil Company of Louisiana, Agreement Amending Agreement of Lease, 6/8/1944, BRHIS-00015453-55. The date on the lease is 2/18/1943. However, according to the notary's note, it was "sworn and subscribed," on 1/28/1943, at BRHIS00015367. The January date appears in other documents pertaining to Plancor 1355.

³⁵¹ Reconstruction Finance Corporation and Esso Standard Oil Company Louisiana Division, Amendatory Agreement, 3/5/1948, US-BR004447-48.

³⁵² Engineer's Final Report as of April 30, 1944, Defense Plant Corporation, Plancor 1355, Baton Rouge, Louisiana, Lessee – Operator The Standard Oil Company of Louisiana, Baton Rouge, Louisiana, US-BR000523-27.

On March 1, 1943, Standard and Rubber Reserve Company signed what became known as the “Refinery Conversion Contract” for the production of butadiene at Plancor 1355. The contract was revised by an amendatory contract dated July 1, 1943. All sections were retroactive to March 7, 1943, except for a contract renegotiation clause.³⁵³

Section 8 of the March 1, 1943, contract contained the same language that appeared in other Baton Rouge plancor contracts including the portion essentially stating that the work described was consistent with the work in which Standard was currently engaged. Section thirteen of the contract included language granting Rubber Reserve the authority to inspect butadiene within four days of its arrival at its destination. Portions of section 25 discussed costs Rubber Reserve would pay, including expenses associated with reconvert Standard-owned equipment back to its original use.³⁵⁴

Language in section 1 of the amendatory agreement discussed the modification and addition to the Baton Rouge Refinery:

under the terms of which Contractor, as agent for the Defense Plant Corporation, has agreed to cause certain modifications of equipment to be made within its refinery at Baton Rouge, Louisiana, and to cause to be acquired and constructed therein certain additional equipment so that a part of said refinery facilities, together with the modifications thereof and the additions thereto, may be used for the production of butadiene in the approximate quantity of six thousand eight hundred (6,800) short tons per year from naphtha feed stock and for the purification of additional quantities of approximately four thousand (4,000) short tons per year of butadiene from butadiene-butylene fractions which may be supplied by Reserve and Contractor in accordance with the provisions hereof . . .³⁵⁵

Section three of the amended contract contained a price structure for butadiene that was identical to what Rubber Reserve and Standard had agreed to for butadiene produced at Plancor 152 on

³⁵³ Rubber Reserve Company and Standard Oil Company of Louisiana, Agreement, 3/1/1943, US-BR004558-99; and Rubber Reserve Company and Standard Oil Company of New Jersey, Amendatory Agreement, 7/1/1943, US-BR0004504-40. The contract renegotiation clause did not appear in the original contract and became effective 7/1/1943.

³⁵⁴ Rubber Reserve Company and Standard Oil Company of Louisiana, Agreement, 3/1/1943, US-BR004558-99. In section one it was stated that under terms of the contract Standard was not an agent of the Rubber Reserve Company.

³⁵⁵ Rubber Reserve Company and Standard Oil Company of New Jersey, Amendatory Agreement, 7/1/1943, US-BR0004504-40, at US-BRC004506.

February 1, 1943. Section four contained prices for the feed stock and other items that Standard would supply.³⁵⁶

A DPC Final Engineer's Report dated April 30, 1944, discussed the Plancor 1355 acquisition program. Under the DPC agreement signed in January 1943, the DPC purchased existing refinery equipment and paid for additional equipment that Standard had purchased. The DPC also paid for "Plans, designs, specifications and schedules," and the cost of contractors and engineers that Standard had retained. The overall purpose of Plancor 1355 was "a quick conversion of existing refinery equipment, so as to relieve the shortage of feed to rubber polymerization plants before the new large butadiene producing plants go into operation." Continuation of the quick program would depend on the demand for butadiene. Plancor 1355 was the first of the "Quickie' Butadiene Projects to go into commercial production." According to the engineer's report, the DPC started the program after Standard had successfully completed experimental work at the Baton Rouge Refinery in the summer of 1942. Plancor 1355 started production on March 22, 1943.³⁵⁷ From when the plant started operation through June 1948, 37,457 short tons of butadiene were produced.³⁵⁸

In a letter dated December 15, 1948, Standard offered to purchase the real property associated with Plancor 1355 for \$325,000. The RFC accepted the offer on December 30, 1948, with the purchase being effective January 1, 1949. In March 1949, the RFC passed a resolution formally accepting Standard's offer and transferring the property, excluding "supplies and materials in inventory, or materials in process."³⁵⁹ In October 1949, Standard tendered an offer to purchase "petroleum stocks in process and in inventory," from the RFC for \$43,596.92. The RFC accepted the company's offer in December.³⁶⁰

5. Plancor 1384 (Ammonia and Methanol)

On August 28, 1942, the DPC authorized \$50,000 for Standard to "perform necessary engineering services in connection with the design of" Plancor 1384. The production of ammonia and methanol at the plant would be used in butadiene and aviation gasoline production. On October 27, 1942, the DPC ordered work stopped on the project and the letter of intent authorizing the project expired on October 31, 1942. Standard had incurred \$6,341.60 in

³⁵⁶ Rubber Reserve Company and Standard Oil Company of New Jersey, Amendatory Agreement, 7/1/1943, US-BR0004504-40; and Rubber Reserve Company and Standard Oil Company of Louisiana, Amendatory Agreement, 2/1/1943, US-BR004292-311.

³⁵⁷ Engineer's Final Report as of April 30, 1944, Defense Plant Corporation, Plancor 1355, Baton Rouge, Louisiana, Lessee – Operator The Standard Oil Company of Louisiana, Baton Rouge, Louisiana, US-BR000523-27.

³⁵⁸ Rubber Reserve, Schedule XI – Production Records, Recapitulation of Butadiene Production, MISC-00009572.

³⁵⁹ Acting Secretary RFC to Esso Standard Oil Company, 12/31/1948, US-BR000911-14; and RFC, Resolution, 3/14/1949, US-BR000909-10.

³⁶⁰ C. Morgan to G. Hadlock, 10/28/1949, US-BR004419-20.

engineering charges. The DPC's board of directors approved payments to Standard on August 25, 1943, for "technical services rendered by the lessee on this Plancor." The DPC never acquired any land, property, or machines for Plancor 1384.³⁶¹

6. Plancor 1526 (Catalyst 1707)

The DPC and Standard signed the lease agreement for Plancor 1526 on February 20, 1943, which covered the cost of constructing a plant to manufacture Catalyst 1707 that was used in the production of butadiene. Standard and the government amended the agreement twice—in June and September 1943—raising the total amount authorized to \$683,000.³⁶² Under the terms of the lease, Standard agreed to serve as an "agent for Defense Corporation." In that capacity, Standard of Louisiana was authorized to execute a contract with Standard Oil Development Company "to prepare and deliver . . . process designs, flow sheets, mechanical specifications and estimates," and "working drawings, and all specifications for material for the construction of the plant." Standard Oil Development Company further agreed to serve as the "technical consultant" and "to select equipment" and "to place orders for all necessary material" for the plant.³⁶³

Stone and Webster started construction on the plant, located near Plancor 572, at the end of March 1943. Plancor 1526 was built on a 1.71-acre parcel of government-owned land north of the Baton Rouge Refinery. The government originally acquired the parcel for Plancor 572.³⁶⁴ Work was completed by September 30, 1943, and it was "turned over to the Standard Oil Company of Louisiana, the Lessee-Operator" on that day. According to the DPC Final Engineer's Report dated March 31, 1944, a lack of skilled workers delayed the start of production at the facility until December 1, 1943, and 4 more weeks passed before the plant

³⁶¹ Prospectus, Plancor No. 1384, 12/31/1943, CODE: Cancelled, US-BR000938-39; C. Comstock, Memorandum to Colonel O. Yeager, 4/5/1944, US-BR000941; O. Kelly to Property Accounts Branch, 8/11/1948, US-BR000975; and Defense Plant Corporation, Plancor No. 1384, 9/15/1943, US-BR000947.

³⁶² Defense Plant Corporation and Standard Oil Company of Louisiana, Agreement of Lease, 2/20/1943, BRHIS-0004972-82; Defense Plant Corporation and Standard Oil Company of Louisiana, Agreement Amending Agreement of Lease, 6/9/1943, BRHIS-0004983-84; and Defense Plant Corporation and Standard Oil Company of Louisiana, Agreement Amending Agreement of Lease, 9/30/1943, BRHIS-0004985-88.

³⁶³ Defense Plant Corporation and Standard Oil Company of Louisiana, Agreement of Lease, 2/20/1943, BRHIS-0004972-82. The lease for Plancor 1526 also contained insurance and liability language.

³⁶⁴ Engineers Final Report as of March 31, 1944, Defense Plant Corporation, Plancor 1526, Baton Rouge, Louisiana, US-BR000865-97; Plancor 1526, Engineer's Final Report, US-BR000851-62, 9/4/1944; Report No. 4631, Volume II, Covering Estimates of the Reproduction Cost of Property Identified as Plancor 1526 Located at Baton Rouge, Louisiana, 1/30/1947, US-BR000001-61; Chemical Products Division, ESSO Standard Oil Co., LA. Div., 8/1/1949, BRC-00000016-27; and Prospectus, Plancor 1526, 10/1/1943, that states: "Operation should start in December, 1943," US-BR000830.

manufactured catalyst that met specifications. The plant only operated for 4 months before it was placed on stand-by status. Standard did not produce catalyst at the plant again.³⁶⁵

The purpose of Plancor 1526 was to supply catalyst to Plancor 152 for butadiene production. Westvaco Chlorine Products Company manufactured most of required catalyst used in Plancor 152. Plancor 1526 was constructed to serve as backup to the Westvaco Company. Plancor 1526 produced an average of 14 tons a day of catalyst during its last months of production.³⁶⁶

Standard agreed to operate Plancor 1526 pursuant to an operating agreement between Standard and Rubber Reserve signed on June 26, 1943, for 5 years from the date the plant was completed and ready for operation. The contract was a cost-plus-fixed fee contract with the initial cost set at \$0.0007 per pound. Annual production was set at 5,000 tons per year. Under section one, Standard agreed to:

undertake all preparations necessary for the subsequent operation of the plant for the production of 1707 catalyst, including the training of personnel and the testing and operation of the Plant or portions thereof, prior to final completion of the Plant.³⁶⁷

Rubber Reserve agreed to pay all of Standard's costs dating to October 19, 1942, and future costs including the cost involved "with the management, operation, repair and maintenance of the Plant and the manufacture, production storage, and loading of 1707 Catalyst." Included in those costs were salaries, benefits, and "discontinuance wages."³⁶⁸

In 1946, Standard and the government signed an agreement under which Standard leased the laboratory facilities of Plancor 1526. Standard canceled that agreement in May 1947

³⁶⁵ Engineers Final Report as of March 31, 1944, Defense Plant Corporation, Plancor 1526, Baton Rouge, Louisiana, US-BR000865-97; and Report No. 4631, Volume II, Covering Estimates of the Reproduction Cost of Property Identified as Plancor 1526 Located at Baton Rouge, Louisiana, 1/30/1947, US-BR000001-61.

³⁶⁶ Report No. 4631, Volume II, Covering Estimates of the Reproduction Cost of Property Identified as Plancor 1526 Located at Baton Rouge, Louisiana, 1/30/1947, US-BR000001-61. This document states that production started on 9/30/1943. Other documents, however, corroborate that production did not start until December. See for example Prospectus, Plancor 1526, 10/1/1943, US-BR000830, that states: "Operation should start in December, 1943." In March 1943, the Standard Oil Development Company made an estimate of buildings and equipment required to produce fifteen tons of 1707 catalyst per day. Based on this figure, the reported fourteen tons per day was within the capability of the plant. Appendix A, Plancor 1526 – 1707 Catalyst Plant, 3/27/1943, US-BR000840-50.

³⁶⁷ Rubber Reserve Company and Standard Oil Company of Louisiana, Agreement, 6/26/1943, US-BR004030-49.

³⁶⁸ Rubber Reserve Company and Standard Oil Company of Louisiana, Agreement, 6/26/1943, US-BR004030-49. Section one stated that under the contract Standard was not an agent of the Rubber Reserve Company.

effective June 15 of that year.³⁶⁹ While Standard was using the laboratory facilities of Plancor 1526, the 1.8 million pounds of catalyst was taking up nearly all available storage space.³⁷⁰

In early 1947, the WAA started to take steps to dispose of Plancor 1526. The Day and Zimmerman Company completed an appraisal of Plancor 1526 in January 1947.³⁷¹ The appraisal placed “the recoverable salvage value” of Plancor 1526 at \$138,469. The WAA, however, recommend to the Office of Real Property Disposal that since Standard was interested in leasing the plancor it should not be cannibalized. The WAA initially estimated the value of the plant at \$149,750 for leasing purposes, but later raised the value to \$152,500.³⁷²

Plans for disposing of Plancor 1526 developed slowly and nothing had happened by the fall of 1948. The 5-year operating and lease agreements signed in 1943 were set to expire on September 30, 1948. Both parties wanted the agreements extended, although Standard wanted the government to take title to the catalyst in storage and pay Standard for it. Initially, the parties extended the 1943 agreements for 60 days.³⁷³ However, the agreements were again extended in late November 1948 for another month. Standard renewed its request that RFC take title of the stored catalyst.³⁷⁴

In mid-December 1948, Rubber Reserve proposed transferring Plancor 1526’s land and storehouse to Plancor 572. Standard opposed the idea because the equipment in Plancor 1526 was not suitable for butyl rubber production. Standard again asked for the removal of the catalyst from the warehouse. Standard also proposed an extension of the lease and operating agreement until March 1, 1949, as long as it was:

understood that such extension does not:

(a) Affect our agreement . . . that all catalyst produced in the Plant prior to October 1, 1948, delivery of which had not been taken by Reserve prior to September 30, 1948, shall be deemed delivered to Reserve as of September 30, 1948, for purposes of the Operating Agreement.

(b) Place Esso under any obligation to produce catalyst.

³⁶⁹ H. Voorhies to W. Murphy, 5/15/1947, US-BR004008; and RFC to Standard Oil Company of New Jersey, 7/23/1946, US-BR004013-15.

³⁷⁰ M. Boyer to G. Hadlock, 12/27/1948, US-BR003994-95; and W. Asbury to RFC, 5/13/1947, US-BR004005-6. According to the letter from W. Ashubry to the RFC, the catalyst was manufactured before 3/2/1946.

³⁷¹ Report No. 4631, Volume II, Covering Estimates of the Reproduction Cost of Property Identified as Plancor 1526 Located at Baton Rouge, Louisiana, 1/30/1947, US-BR000001-61.

³⁷² V. Friesse to J. McCormick, 2/26/1947, US-BR000118-19; and W. C. Cope, War Assets Administration Appraisal Division, Office of Real Property Disposal, 3/10/1947, US-BR000116-7.

³⁷³ W. Munster to Esso Standard Oil Company, 10/26/1948, US-BR004001-02.

³⁷⁴ G. Hadlock to Esso Standard Oil Company, 12/9/1948, US-BR003998.

(c) Make Esso responsible in any manner for the maintenance or care of Plancor 1526 materials, equipment, and property. . .³⁷⁵

Standard asked that Rubber Reserve to sign the letter if it agreed. G. Hadlock signed the letter on behalf of Rubber Reserve on December 30, 1948.³⁷⁶ Rubber Reserve and Standard subsequently extended the agreement from December 30, 1948, through June 30, 1950.³⁷⁷ However, before the agreement expired on June 30, 1950, the property of Plancor 1526 was transferred to Plancor 572. By the end of 1950, the plant had been dismantled and its inventories disposed.³⁷⁸

7. Plancor 1868 (CS [Xylidine])

Construction of Plancor 1868 at Baton Rouge developed similarly to Plancor 572 in that the DPC acquired a facility that Standard had already started to construct. In late October 1942, the OPC asked Standard to proceed with expanding its hydrogenation plant at Baton Rouge. The OPC request followed a proposal that it had received for expansion that involved using second-hand equipment from Standard of New Jersey's Bayway refinery.³⁷⁹ At this time experimental work was underway that involved the production of CS (xylidine), which required hydrogenation before it could be used in aviation gasoline. On May 8, 1943, the government gave priority approval to Standard to expand its hydrogenation facilities. In June, a private contractor began construction of the additional facilities. On June 19, 1943, the War Department authorized Standard to undertake construction that would result in 1,000 barrels of xylidine per day with an eventual capacity of 2,000 barrels a day. A RFC letter of intent dated July 8, 1943, authorized construction of Plancor 1868.³⁸⁰

³⁷⁵ M. Boyer to G. Hadlock, 12/27/1948, US-BR003994-95.

³⁷⁶ G. Hadlock to Esso Standard Oil Company, 12/30/1948, US-BR003994-95.

³⁷⁷ Rubber Reserve to Esso Standard Oil Company, Louisiana Division, 3/8/1949, US-BR003991; Rubber Reserve to Esso Standard Oil Company, Louisiana Division, 7/22/1949, US-BR003988; Rubber Reserve to Esso Standard Oil Company, Louisiana Division, 1/4/1950, US-BR003985; and Rubber Reserve to Esso Standard Oil Company, Louisiana Division, 4/20/1950, US-BR003982.

³⁷⁸ H. Voorhies to RFC, 6/2/1953, BRC-00003876-77. Price Waterhouse & Company, to Rubber Reserve Company, Reconstruction Finance Corporation, Office of Rubber Reserve, Plants at Baton Rouge, Louisiana, Operated or Maintained in Standby Condition, By Esso Standard Oil Company, RuR SR Nos. 15, 123, 158, 397, Report on Examination, 12/31/1950, BRC-00010976-11030, at BRC-00010980.

³⁷⁹ Engineer's Final Report of Reconstruction Finance Corporation, Office of Defense Plants, Plancor 1868, 12/31/1945, MAA_EM-005051-91; and WAA, Memorandum to General Board 4/15/1948, US-BR000070.

³⁸⁰ Defense Plant Corporation and Standard Oil Company of Louisiana, Agreement of Lease, 11/23/1943, BRHIS-00000058-77. War Assets Administration, Industrial Division, 4/15/1948, US-BR000070-75. Construction on first part of the plant was authorized on May 8, 1943. War Assets Administration, Office of Real Property Disposal, Appraisal Division, Plancor 1868, 11/4/1948, MAA_EM-002952-61. Also see, Engineer's Final Report of Reconstruction Finance Corporation, Office of Defense Plants, Plancor 1868, 12/31/1945, MAA_EM-005051-91.

Plancor 1868 consisted of 3 parcels of land that the DPC leased from Standard. The first two were within the Baton Rouge Refinery area and the third was located 4.5 miles north of the refinery at the Maryland Tank Farm. Lease hold 1 (2.594 acres), included the new buildings and equipment required to produce xylydine, including a compressor building, high pressure pump house, laboratory building, and control house. Lease hold 2 (0.840 acres), consisted of change houses and a laundry. Lease hold 3 (14.990 acres), the Maryland Tank Farm, included a change house, pumps, and storage tanks.³⁸¹

The DPC and Standard signed the agreement of lease for Plancor 1868 in November 1943. The lease language noted that in June the War Department had:

requested that the appropriate subsidiary companies of the Standard Oil Company (N. J.) . . . ‘proceed with all possible dispatch with the necessary steps to supply 1,000 barrels of C-S per day from the larger Baton Rouge hydrogenation plant.’³⁸²

As in all of the other DPC-Standard leases, Standard agreed to act as an agent in the design and construction of the plant. The contract also stated that Standard was “willing to arrange for the design, installation, construction, and provision of all the necessary machinery, equipment, buildings and other facilities necessary for the expansion [Standard’s] existing hydrogenation facilities.”³⁸³ Standard further agreed to lease to the DPC the necessary sites for 1 dollar per year. Section four of the agreement discussed the work that Standard had already undertaken to expand its hydrogenation facilities. Standard also agreed to acquire an insurance policy and hold the United States harmless if an injury occurred on the site. The DPC agreed to reimburse Standard for those facilities upon their completion for no more than \$1,233,300. As it did in the other plancor leases, the DPC agreed to reimburse Standard for a number of other expenses as well. However, the parties agreed that the DPC would spend no more than \$4 million on the entire project, although Standard could not guarantee completion of the project for that amount.³⁸⁴

Production began on December 7, 1943, but xylydine operations only lasted for 80 days. Production for those 80 days was 804,129 gallons of CS. Increased supplies of “catalytic base stocks from other sources,” meant that “the need for this exceedingly toxic substance was found

³⁸¹ Engineer’s Final Report of Reconstruction Finance Corporation, Office of Defense Plants, Plancor 1868, 12/31/1945, MAA_EM-005051-91; RFC, Hydrogenation Facilities, Plancor 1868, Baton Rouge, Louisiana, MAA_EM-000265-71; War Assets Administration, Industrial Division, April 15, 1948, US-BR000070-75; and War Assets Administration, Office of Real Property Disposal, Appraisal Division, Plancor 1868, 11/4/1948, MAA_EM-002952-61.

³⁸² Defense Plant Corporation and Standard Oil Company of Louisiana, Agreement of Lease, 11/23/1943, BRHIS-00000058-77.

³⁸³ Defense Plant Corporation and Standard Oil Company of Louisiana, Agreement of Lease, 11/23/1943, BRHIS-00000058-77.

³⁸⁴ Defense Plant Corporation and Standard Oil Company of Louisiana, Agreement of Lease, 11/23/1943, BRHIS-00000058-77.

no longer urgent.”³⁸⁵ Standard continued to receive raw materials, which were stored at the Maryland Tank Farm. Standard used the hydrogenation facilities under terms of the Plancor 1868 lease through September 1945.³⁸⁶ The RFC’s engineer’s report dated December 31, 1945, stated that since the plant was reconverted it produced approximately 1,250 barrels of hydrogenated polymer per day and 170 barrels per day of “light ends” that contained isobutane and isopentane.³⁸⁷

Pursuant to lease terms for Plancor 1868, the parties officially terminated the lease on October 16, 1945. The RFC granted Standard’s request to use hydrogenation equipment, the change houses, laboratory building, and “field pipelines” according to terms outlined in September 1944. The RFC gave additional consent for Standard to continue to use the facilities on January 10, 1946.³⁸⁸ In May 1946, the government authorized the “cannibalization of machinery and equipment.” Then, on April 8, 1947, the Surplus Property Board declared Plancor 1868 surplus.³⁸⁹ On July 6, 1949, Samuel Rudolph and Associates purchased Plancor 1868—along with Plancor 1065. Under the terms of the sale, Rudolph and Associates was to dismantle and resell the plant with the government participating in the resale and receiving a minimum of \$70,000. The government sold a portion of Plancor 1868 property, buildings, and equipment to ESSO in October 1949. ESSO also acquired part of the equipment of Plancor 1868 in 1950 from a company that had purchased it from the Rudolph Company.³⁹⁰

F. Government Inspectors at Baton Rouge

As noted, section nine of the 100-octane aviation gasoline contract between the DSC and Standard of New Jersey addressed deliveries and inspections. The inspection clauses concerned quality, quantity, and the issuance of inspection certificates.³⁹¹ Sections twenty and twenty-one

³⁸⁵ Engineer’s Final Report of Reconstruction Finance Corporation, Office of Defense Plants, Plancor 1868, 12/31/1945, MAA_EM-005051-91, at MAA_EM-005084; and War Assets Administration, Office of Real Property Disposal, Appraisal Division, Plancor 1868, 11/4/1948, MAA_EM-002952-61.

³⁸⁶ War Assets Administration, Office of Real Property Disposal, Appraisal Division, Plancor 1868, 11/4/1948, MAA_EM-002952-61.

³⁸⁷ Engineer’s Final Report of Reconstruction Finance Corporation, Office of Defense Plants, Plancor 1868, Standard Oil Company of New Jersey, BRHIS-00000080-336, at BRHIS-00000200.

³⁸⁸ RFC to Standard Oil Company of New Jersey, 1/10/1946, US-BR000154; and F. Ronan to M. Boyer, 9/30/1944, US-BR000156.

³⁸⁹ War Assets Administration, Industrial Division, 4/15/1948, US-BR000070-75.

³⁹⁰ I. Gumbel to W. Wallace, 1/5/1950, US-BR000083; Sale and Partial Cancellation of Lease, 10/1/1949, Esso Standard Oil Company and the General Services Administrator, US-BR000084-88; W. Holcombe to O. Boatwright, 1/9/1951, US-BR000323; and T. Peyton to H. Plummer, 6/19/1953, BRC-0008790-96.

³⁹¹ Defense Supplies Corporation and Standard Oil Company of New Jersey, Agreement, 1/13/1942, MIS-00022185-210.

of the DPC-Standard leases for Plancors 152 and 572 contained the following regarding the DPC's audit and inspection authority:

[s]o long as this lease remains in effect, Lessee shall make available to Defense Corporation for audit and inspection, its records pertaining to the acquisition of the site, the Construction Program, and the operations of the plant and any of the machinery. Defense Corporation shall have the right to inspect the site, buildings, and machinery to be provided hereunder at all reasonable times during the continuance of this lease or extension thereof.³⁹²

The lease agreement for Plancor 1065 contained similar language in paragraph eighteen. However, paragraph eighteen did call on Standard to maintain a "separate accounting of the sales of all toluene produced and all other products manufactured and/or furnished by the Lessee through the use of the Plant and facilities" while the plant was operating under terms of the lease and for one year after.³⁹³ The lease agreements for Plancors 1355 and 1526 contained language similar to what appeared in the lease agreements for Plancors 152 and 572, although with a clause to allow such audits and inspections for one year after the agreement was terminated.³⁹⁴ The lease agreement for Plancor 1868 contained the following addition to the general audit and inspection paragraph, "[u]nless authorized in writing by Lessee, not more than an aggregate of five (5) representatives of Defense Corporation shall have access at any time to the Defense Plant for audit, inspection or other purposes."³⁹⁵

The various operating agreements entered into between Standard and Rubber Reserve contained language concerning audits and inspections of financial records and inspection of product. The operating agreement for Plancor 152 stated that the government could inspect accounting records and if disagreement arose, the parties could consult a certified public accountant. Rubber Reserve retained the right to inspect all butadiene purchased, although such inspections had to occur within 4 days of receipt of a butadiene shipment. Rubber Reserve had 10 days to notify Standard if butadiene did not meet specifications.³⁹⁶ The operating agreement

³⁹² Agreement of Lease Standard Oil (Butadiene), 8/23/1941, BRHIS-00001165-73; and Agreement of Lease, Standard Oil of Louisiana (Butyl Rubber) Plancor 572, 4/20/1942, BRHIS-00015858-68.

³⁹³ Standard Oil of Louisiana (Toluene) Agreement of Lease, 6/23/1942, BRHIS-00003016-28.

³⁹⁴ Agreement of Lease, Standard of Louisiana, #3, (Butadiene), Plancor 1355, 2/18/1943, BRHIS-00015355-67; and Agreement of Lease, Plancor 1526 between Defense Plant Corporation and Standard Oil Company of Louisiana, 2/20/1943, BRHIS-0004972-82.

³⁹⁵ Agreement of Lease between Defense Plant Corporation and Standard Oil of Louisiana (Baton Rouge, Louisiana) 100-Octane Aviation Gasoline, 11/23/1943, BRHIS-00000058-77. The language cited is in paragraph nineteen.

³⁹⁶ Rubber Reserve Company and Standard Oil Company of Louisiana, Operating Agreement, 3/19/1942, US-BR004381-4413, at US-BR004392 and US-BR-004396.

for Plancor 572 had language similar to the Plancor 152 operating agreement, although inspection of butyl rubber was to occur before shipment.³⁹⁷

The operating agreement for Plancor 1355 signed on March 1, 1943, contained similar language regarding financial audits and inspections. Rubber Reserve could look at the accounting records and other financial records, but Rubber Reserve would hold such information in confidence. Any adjustments would occur in 6-month increments. Rubber Reserve representatives had to inspect butadiene within 4 days of receipt and notify Standard within 10 days if it did not meet specifications. This was identical to the operating agreement for Plancor 152.³⁹⁸ The operating agreement for Plancor 1526 contained language similar to the operating agreement for Plancor 152, although inspection of the catalyst was to occur before shipment.³⁹⁹

In addition to the inspection and audits of financial records and the inspection of final products contained in the operating agreements there were publications on general inspections of refineries and other plants engaged in manufacturing for the war effort. One such publication was prepared for the inspection of the Baton Rouge Refinery in May 1943 that discussed Standard of Louisiana work beginning in the late 1920s that proved so valuable for the war effort.⁴⁰⁰ Another publication is a manual that the PAW prepared in conjunction with the Petroleum Industry War Council contained recommendations for refinery inspections. The 4 major areas discussed were “REFINERY PROCESS EQUIPMENT,” “ELECTRICAL EQUIPMENT,” “INSTRUMENTS,” and “FIRE PROTECTION EQUIPMENT.”⁴⁰¹ Another general document from May 1942 provided instructions for language in Ordnance Department subcontracts concerning plant protection.⁴⁰² In another general document from March 1943, a private insurance company, evidently at the behest of the DPC, wrote recommendations for “THE CONSTRUCTION, MAINTENANCE, AND FIRE PROTECTION,” at synthetic rubber

³⁹⁷ Contract between the Rubber Reserve Company and Standard Oil of Louisiana, 7/9/1942, US-BR003857-89, at US-BR003871 and US-BR003875.

³⁹⁸ Rubber Reserve Company and Standard Oil Company of Louisiana, Agreement, 3/1/1943, US-BR004558-99, at US-BR004576 and US-BR004581; and Rubber Reserve Company and Standard Oil Company of New Jersey, Amendatory Agreement, 7/1/1943, US-BR0004504-40.

³⁹⁹ Agreement between the Standard Oil Company of Louisiana and the Rubber Reserve Company, 6/26/1943, US-BR004030-49, at US-BR004038 and US-BR004043.

⁴⁰⁰ B. Brown, Major War Projects, Baton Rouge Refinery, Standard Oil Company of Louisiana, Prepared for War Agencies Joint Inspection Trip, 5/30-31/1943, BRC-00011607-40, at BRC-00011613.

⁴⁰¹ Petroleum Administration for War, Wartime Recommendations for Refinery Inspections,” n.d., MIS-00007481-654.

⁴⁰² H. Kutz to All Contracting and Purchasing Officers Ordnance Department, 5/20/1942, BRHIS-00008999-9002.

plants and high-octane gasoline plants. According to the study, at the time it was undertaken, there were not base insurance ratings for such plants.⁴⁰³

Officials of several government offices made plant specific inspections of the facilities at Baton Rouge. In January 1943, F. B. Varga of Rubber Reserve visited 5 plants in the gulf coast region that were producing synthetic rubber including Baton Rouge. On January 14, Varga inspected the butadiene and butyl plants at Baton Rouge and met with three employees of Standard. In his report, Varga noted the degree of completeness of various aspects of the plants. He noted that production bottlenecks did exist and that “considerable” steel work was unnecessary when the plant was constructed.⁴⁰⁴

Bureau of the Budget officials visited Plancor 152 twice and Plancor 572 once in 1943. Following each inspection, the official completed a “PLANT PRODUCTION AND OPERATION REPORT.” The reports provided high-level information on such issues as plant location and site, construction, operation, and raw material needs.⁴⁰⁵

G. Standard of Louisiana’s Wartime Management of the Baton Rouge Refinery

In addition to the aviation gasoline production and the plancor operating agreements that Standard signed, other documents underscored the company’s management of the Baton Rouge Refinery and continued research to improve production. Standard continued to operate a pilot plant at Baton Rouge that conducted research into butadiene purification in 1943. The PAW desired that Standard allow representatives of other companies to observe plant operation. To that end, the PAW worked with Standard and Standard Oil Development Company to secure the necessary permission. The Standard companies gave permission for individuals to visit, although they were only allowed to observe operations in “the ‘M’ [pilot] plant, the Refinery Conversion unit Plancor 1355, and possibly one of the privately owned butadiene extraction plants.”⁴⁰⁶ Standard continued its research on refinery conversion and in October 1943 submitted a cost estimate for a plant.⁴⁰⁷

Petroleum companies nationwide submitted production figures to the PAW during the war. In July 1943 M. W. Boyer, vice president of Standard’s Manufacturing Department, wrote the PAW to correct numerous errors in a form that the PAW had sent to Standard. Boyer noted

⁴⁰³ John G. Simmonds & Co., Inc. Oil Insurance Underwriters, Recommendations for the Construction, Maintenance and Fire Protection at the Following Plants Being Constructed for the Defense Plant Corporation, circa 3/6/1943, MIS-00005207-10.

⁴⁰⁴ F. Varga to J. Livingston and R. Sarge, 1/15/1943, US-GEN000159-72.

⁴⁰⁵ Executive Office of the President, Bureau of the Budget, War Projects Unit, Plant Production and Operation Report, 5/27/1943 (Plancor 152), BRHIS-00001492-99; 12/9/1943 (Plancor 152), BRHIS-00001114-21; and 12/11/1943 (Plancor 572), BRHIS-00001484-91.

⁴⁰⁶ D. Wilson to H. Wilde, et al., 6/30/1943, MIS-00009392.

⁴⁰⁷ M. Boyer to A. Murphy, 10/8/1943, US-BR000596-99. Standard also had other research projects. For work on an infrared spectrometer see, A. Culbertson to C. Brown, 8/21/1944, MIS-00009365.

incorrect quantities of 91-octane gasoline production and attributed the error to the PAW's confusion over Standard's periodic sale of the gasoline to "Esso Marketers." Boyer also noted that the PAW had incorrectly listed production of 87-octane gasoline at 1,513 barrels per day. However, the company did not make any 87-octane aviation gasoline. Boyer suspected that the PAW was referring to 73- and 80-octane aviation gasoline.⁴⁰⁸

A May 1944 letter from the President of Standard to Rubber Reserve illustrated the company's management of the Plancors at Baton Rouge and the exchange of raw and semi raw materials between the Plancors. In the letter, Rathbone discussed Standard's operation of Plancor 152 and the plant's production of hydrogen-rich residue gas. As the company had completed expansion of its hydrogenation facilities it had recently started to use the hydrogen gas from Plancor 152 in the hydrogenation plant. Since Standard was going to use the hydrogen gas in the production of aviation gasoline Rathbone said that Standard would charge the expense of the residue gas to Plancor 1868 that the company was operating under the Aviation Gasoline Reimbursement Plan, which covered all of the plants operating costs.⁴⁰⁹

The Executive Committee Minutes of Standard Oil of New Jersey shows the parent company's oversight of the Baton Rouge facility. The minutes exist for the years 1939 through 1949 and provide a daily account of the committee's activities. The minutes show that the committee was interested in the fine details of what was occurring within Standard's service area. For example, a January 19, 1939, entry regarding negotiations for the sale of an undeveloped service station site in Basile, LA. On April 13, 1942, the committee heard of contemplated purchases by Standard for butyl rubber facilities, equipment for its laboratories at Baton Rouge, and office improvements in New Orleans. A third example occurred on January 6, 1944, when the committee reviewed plans for the installation of aviation gasoline equipment at Baton Rouge.⁴¹⁰

H. Master Separator at Baton Rouge

Beginning in the late 1930s and continuing through World War II, Standard of Louisiana expressed growing concern over pollution in the Mississippi River. During World War II, this concern culminated in August 1944 when Standard filed a request with the War Production Board for permission to purchase steel for the construction of a master separator. The WPB

⁴⁰⁸ M. Boyer to G. Granger, 7/31/1943, MIS-00000022-23. Also see, H. Voorhies to G. Ganger, 11/22/1944, regarding production figures for October 1944, MIS-00010645.

⁴⁰⁹ M. Rathbone to S. Crossland, 5/1/1944, BRHIS-00000619-20.

⁴¹⁰ Standard Oil of New Jersey, Executive Committee Minutes, 1/19/1939, MIS-00031668-75, at MIS-00031673; Standard Oil of New Jersey, Executive Committee Minutes, 4/13/1942, MIS-00031183-93, at MIS-00031185; and Standard Oil of New Jersey, Executive Committee Minutes, 1/6/1944, MIS-00030305-06.

denied the request because of the steel shortage and its critical need for other wartime uses.⁴¹¹ The WPB did grant Standard permission to build a mud washing and emulsion treating facility.

Standard started looking at the issue as early as 1938 when C. H. Bunn completed a study on “sewer and separator facilities.” Standard made improvements based on that study. Those improvements proved inadequate when crude runs increased.⁴¹² In the summer of 1939, the engineering department at Baton Rouge released “Study of Separators and Pollution” and “The Effect of Intermediate Baffles and Distribution Walls in Gravity Type Oil-Water Separators.”⁴¹³ The abstract of the first study stated that “slop” was stored at the Maryland Tank Farm and at the main refinery. The abstract of the second study said that stream pollution had become an “important” problem and had become a concern at oil refineries. The abstract said that every refinery has some sort of “gravity oil-water separator” and that all of the separators at Baton Rouge were either square or rectangular. The purpose of the work was to design a new and more efficient separator.⁴¹⁴ At the time of the studies, the discharge of industrial waste into waterways was commonplace in the United States. This common practice continued and increased during World War II and eventually resulted in controversy on the lower Mississippi River.

In January 1944, Congressman F. Edward Hebert wrote Secretary of War Henry Stimson and complained about pollution in the Mississippi River that had fouled the water and had “caused a great deal of discomfort and distress to the citizens of New Orleans.”⁴¹⁵ In September of 1943, a ship discharged oil into the river while transferring the oil to a barge. The author of a report on the incident noted:

[t]he spilling of good usable oil into the Mississippi River as a violation of the Oil Pollution Act of 1924 has never been decided as the Mississippi River at New Orleans has never been determined to be a waterway in which the tide ebbs and flows. Whether

⁴¹¹ Steel, copper, and aluminum were three of the most important materials for war production during World War II. In 1942, because of persistent problems associated with allocation, all three were placed under the Premium Price Plan.

⁴¹² River Pollution Control Problem, 7/24/1944, US-BR006092-93.

⁴¹³ Engineering Department, Standard Oil Company of Louisiana, “Study of Separators and Pollution,” 7/28/1939, BRHIS-00014013-16; and Engineering Department, Standard Oil Company of Louisiana, “The Effect of Intermediate Baffles and Distribution Walls in Gravity Type Oil-Water Separators,” 9/7/1939, BRHIS-00014017-20.

⁴¹⁴ Engineering Department, Standard Oil Company of Louisiana, “Study of Separators and Pollution,” 7/28/1939, BRHIS-00014013-16; and Engineering Department, Standard Oil Company of Louisiana, “The Effect of Intermediate Baffles and Distribution Walls in Gravity Type Oil-Water Separators,” 9/7/1939, BRHIS-00014017-20.

⁴¹⁵ F. Hebert to H. Stimson, 1/8/1943, US-BR006112-14. Although this letter is dated 1/8/1943, the other letters in this group of correspondences indicate that the correct date is 1/8/1944. See, for example, F. Hebert to E. Reybold, 1/7/1944, US-BR006111; and T. Robbins to F. Hebert, 1/12/1944, US-BR-006110.

the oil can be classed as refuse for prosecution under the River and Harbors Act of 3 March 1899 is also to be decided.⁴¹⁶

In January 1944, a discharge of oil into the river occurred at the Baton Rouge Refinery when a barge was transferring oil.⁴¹⁷ Because of that incident, in February 1944 Standard studied discharges from the refinery and the synthetic rubber plants and made a number of recommendations, including the establishment of a “Waste Disposal Department.”⁴¹⁸ In a second report, W. B. Hart further recommended the construction of a “Master Separator to sufficiently remove oil from the effluent of existing separators” and the “Construction of silt cleaning plant near the main separators.” In response to these studies, Standard created an Oil Conservation Department in 1944.⁴¹⁹

In July 1944, Standard wrote the PAW asking permission to build the new master separator.⁴²⁰ In August, a series of Army Corps of Engineers letters and endorsements discussed the proposed master separator and the mud cleaning facility. In an August 7 letter, Brigadier General M. Tyler said the WPB had informed him that steel for the master separator would have to come from steel allocated for high-octane gas plants. Under those conditions Tyler wrote, “I could not state that this installation should have priority in such circumstances.”⁴²¹ Two weeks later in another letter, it was noted that the PAW was going to recommend to the WPB the approval of the silt cleaning project and disapproval of the master separator.⁴²² Standard had already endorsed construction of the silt-cleaning project. In an August 12, 1944, letter to Standard Oil Development Company, the executive vice president of Standard of Louisiana wrote:

Although we think the installation of both projects is very desirable, if in the interest of conservation of materials and manpower it is necessary to postpone at least part of these projects, we believe that the installation of mud washing and emulsion treating facilities

⁴¹⁶ G. Hudson to U. S. Attorney, 9/27/1943, US-BR006117; and G. Hudson, Report in RE: United States vs. S/S Sea Scamp, 9/27/1943, US-BR-006118-19.

⁴¹⁷ G. Hudson to Standard Oil Company of Louisiana, 1/31/1944, BRHIS-00015127. Another spill occurred at Avondale, south of Baton Rouge, in February 1944. See G. Hudson to U. S. Attorney, 5/18/1944, US-BR006103-05.

⁴¹⁸ River Pollution Control Problem, 7/24/1944, US-BR006092-93

⁴¹⁹ Operation of the Oil Conservation Department at the Baton Rouge Refinery, 5/1950, BRHIS-00013937-89.

⁴²⁰ M. Boyer to PAW, 7/5/1944, BRHIS-00014046-55.

⁴²¹ M. Tyler to C. of E., SPEWR, 8/7/1944, US-BR006086. Also see M. Tyler to C. of E., SPEWR, 8/30/1944, US-BR006081.

⁴²² R. Tatlow to Chief of Engineers, 8/23/1944, US-BR006089.

should be given preference, since they could be installed more quickly and more could be accomplished in correcting pollution problems with a smaller investment.⁴²³

The PAW wrote Standard on August 22, 1944, and said that Standard should consider the separator a postwar project. The PAW urged completion of the silt treating project as soon as possible.⁴²⁴

Despite Standard's desire to build the new separator in 1944, the project does not seem to have retained a high priority after the end of the war. As of May 1950, Standard had not built the master separator at the Baton Rouge Refinery.⁴²⁵

I. Standard of Louisiana's Wartime Expansion

As discussed earlier, Standard of Louisiana participated in most of the World War II programs to expand industrial capacity and output including the DPC, increased acceleration of tax depreciation, and the Aviation Gasoline Reimbursement Plan. The DPC funded almost \$46 million in plant expansion at Baton Rouge. Through the Necessity Certificate Program, Standard invested close to another \$42.5 million in plant expansion. The DSC also advanced Standard \$14.4 million, although the company could have sought accelerated depreciation on some percentage of that figure. Private funding of expansion at Baton Rouge also occurred before 1940. As discussed, the company started construction on an alkylate plant in 1939 for which it was able to claim partial accelerated depreciation on Necessity Certificate WD-N-27023. One history of Standard of New Jersey states that the DPC and Standard spent \$90 million at Baton Rouge on new plant construction with the company providing half of the money.⁴²⁶

J. Post World War II

Following World War II, Standard of New Jersey and its affiliates made the transition from manufacturing high-octane aviation gasoline to high-octane automobile gasoline. Standard was able to transition some of the aviation gasoline components in the production of auto fuel with octane ratings of 85 or even 95. An unexpected and unprecedented demand for petroleum products in the immediate post-war years led to the potential for shortages until the late 1940s.⁴²⁷

As discussed in the Introduction and the Baytown sections of this report, despite demobilization following World War II, the United States economy—and society—was much

⁴²³ M. Boyer to H. Barlow, 8/12/1944, BRHIS-00014044.

⁴²⁴ B. Brown to M. Boyer, 8/22/1944, BRHIS-00015128.

⁴²⁵ Operation of the Oil Conservation Department at the Baton Rouge Refinery, 5/1950, BRHIS-00013937-89, at BRHIS-00013951.

⁴²⁶ Larson, Knowlton, and Popple, New Horizons, MIS-00023443-930, at MIS-00023692.

⁴²⁷ Larson, Knowlton, and Popple, New Horizons, MIS-00023443-930, at MIS-00023724-25, MIS-00023785-90 and MIS-00023845.

different in the late 1940s and 1950 than it had been in the late 1930s and 1940. Additionally, the foreign policy outlook of the United States was dramatically different. As occurred at Baytown, after the outbreak of the Korean War in June 1950, Standard of Louisiana again participated in the war effort, albeit to lesser degree than in World War II. Standard applied for Necessity Certificates to accelerate depreciation on purchases of equipment and machinery necessary for wartime production.

K. The Korean War Era and Aviation Gasoline

1. Korean War Tax Amortization Certificates (Necessity Certificates) and Government Loans at Baton Rouge

As discussed, the Revenue Act of 1950 contained provisions similar to the Second Revenue Act of 1940 allowing a company to ask for accelerated depreciation for privately financed wartime business expansion. As in World War II, under the 1950 law, accelerated depreciation would occur over a 60-month period. During the Korean War, Standard applied for and received 9 tax amortization certificates worth more than \$50.1 million. The Necessity Certificates issued during the Korean War were not retained. The information in Table 3.2 is drawn from PAD reports and documents.

Table 3.2

Baton Rouge Tax Amortization Certificates (Necessity Certificates) During the Korean War

Application No.	Facility	Amount	Bates Number
TA-4326	facilities for the extraction of aromatics, butadiene, ethylene dicyclodines, etc from cracked naphtha	\$2,781,600.00	US-GEN002634-41
TA-5069	facilities to produce octyl and tridocyl alcohols	\$2,052,000.00	US-GEN002676-77
TA-5074	additions to refinery including additions to crude, cat cracking lube oil, treating, utilities, etc.	\$11,758,600.00	US-GEN002676-81
TA-5066	facilities to make isopropyl alcohol and octyl alcohol	\$228,200.00	US-GEN002695
TA-17883	basic refining facilities including a new 2-stage crude unit, expansion of catalytic cracking unit, new debutenizer, conversion of a crude distillation unit to naphtha and gas oil re-running unit and misc. auxiliary facilities	\$12,522,000.00	US-GEN002708-09
TA-10407	facilities to produce petrochemicals	\$7,919,650.00	US-GEN002688
TA-20829	chemical processing equipment, storing and shipping facilities to increase production of petroleum resin	\$1,260,000.00	US-GEN002739-41
TA-25168	additional alkylation reactor capacity and tankage for blending and storing aviation gasoline	\$607,000.00	US-GEN002731-32
TA-26484	27,700 B/D catalytic reforming unit	\$11,022,500.00	US-GEN002724-26
Total		\$50,151,550.00	

The second column in Table 3.2 gives the verbatim description that appeared in the source document. Similar to World War II, Standard received accelerated depreciation on equipment used to increase crude runs, aviation gasoline production, synthetic rubber components, alcohols, and chemicals. Three certificates (TA-5074, TA-17883, and TA-26484) concerned refinery expansion and their total exceeded \$35 million. A difference between the amortization program during the Korean War and World War II is that during the Korean War the PAD usually recommended partial tax amortization. In other words, a company could not take accelerated depreciation on the entire cost of a facility. Instead, the PAD recommended to the NPA that it grant only partial depreciation by determining what percentage of the new facility's production was for the war effort. The figures in Table 3.6 are the amount on which the government allowed Standard to take accelerated depreciation.⁴²⁸

During the Korean War, the government again made low-interest loans for facility expansion available. However, there is no evidence indicating that Standard received such a loan to expand the Baton Rouge facility.

2. Standard of Louisiana's Korean War Production Record

Beginning in October 1950 and running for 18 months through March 1952, the PAD compiled high-octane aviation gasoline production statistics. Data for the Baton Rouge Refinery is presented in Table 3.3.

⁴²⁸ Brown, Oil Men in Washington, MISC-00015434-804, at MISC-000015494-95. The National Production Authority (NPA) was the Federal agency that oversaw Korean War mobilization. The President created the NPA on September 9, 1950, when he issued Executive Order 10161. The NPA was in the Department of Commerce. See, Executive Order 10161, Fed. Reg., 9/12/1950, pp. 6105-08; and "Department of Commerce, National Production Authority, Establishment and Functions," Fed. Reg., 9/14/1950, pp. 6182-83.

Table 3.3

Military Aviation Gasoline Production Data for Baton Rouge October 1950 – February 1952

(42-gallon barrels per day)

Report Title	Production Month	115/145 Octane	100/130 Octane	Bates Number
Aviation Gasoline Report No. 2, November 29, 1950	Oct. 1950	7,100*	3,230*	MISC-00005911-12
Aviation Gasoline Report No. 3, December 25, 1950	Nov. 1950	97,000	4,000	MISC-00005913-14
Aviation Gasoline Report No. 5, February 26, 1951	Jan. 1951	44,000	16,000	MISC-00005918-20
Aviation Gasoline Report No. 6, March 26, 1951	Feb. 1951	110,000	0	MISC-00005921-23
Aviation Gasoline Report No. 7, April 25, 1951	March 1951	15,000	16,000	MISC-00005924-26
Aviation Gasoline Report No. 8, May 31, 1951	April 1951	82,000	16,000	MISC-00005927-29
Aviation Gasoline Report No. 9, June 26, 1951	May 1951	85,000	16,000	MISC-00005930-32
Aviation Gasoline Report No. 10, July 30, 1951	June 1951	(6,000)	47,000	MISC-00005933-35
Aviation Gasoline Report No. 11, August 31, 1951	July 1951	(8,000)	16,000	MISC-00005936-38
Aviation Gasoline Report No. 12, September 30, 1951	Aug. 1951	no figures	16,000	MISC-00005939-41

Aviation Gasoline Report No. 15, December 28, 1951	Nov. 1951	no figures	16,000	MISC- 00005948-50
Aviation Gasoline Report No. 16, January 31, 1952	Dec. 1951	no figures	16,000	MISC- 00005951-53
Aviation Gasoline Report No. 17, February 29, 1952	Jan. 1952	no figures	16,000	MISC- 00005795-5802
Aviation Gasoline Report No. 18, March 31, 1952	Feb. 1952	no figures	125,800	MISC- 00005964-66
Total		419,000	320,800	

* These data points are for “Barrel per Calendar Day Basis” and appear to be for multiple Standard refineries including Baytown and are not included in the totals at the bottom of the table.

Another document gives some indication that production, or at least storage, of aviation gasoline was occurring at Baton Rouge in May 1952. A PAD document from May 1952 indicates large inventories of alkylate, 115/145 octane gasoline, and 100/130 gasoline at Baton Rouge.⁴²⁹ The data in the document shows that Standard was engaging in production, or at least storage, for both the military and for the civilian market. Table 3.4 contains numbers for alkylate and aviation gasoline.

⁴²⁹ G. Grant to M Granville, circa 5/8/1952, MISC-00005787-94.

Table 3.4

Baton Rouge Inventory as of May 8, 1952 (gross barrels)

Product	Barrels
Alkylate	109,302
Finished Military 115/145 Octane	51,282
Finished Military 100/130 Octane	150,696
Finished Commercial 115/145 Octane	0
Finished Commercial 108/135 Octane	46,984
Finished Commercial 110/130 Octane	11,238
Finished Commercial 91/98 & 91/96 Octane	14,946
Finished Commercial (Other)	7,029

According to the document, nearly 110,000 gross barrels of alkylate, more than 51,000 gross barrels of finished 115/145 octane gasoline for the military, and more than 150,000 gross barrels of military 110/130 octane gas were onsite at Baton Rouge. More than 80,000 barrels of several grades of gasoline for commercial customers were also at the refinery.

As noted in the Baytown section of this report, additional production data for the Korean War years has not yet been located. And, as also discussed, in the Baytown section shortages of aviation gasoline occurred during the Korean War, but the general situation was much better than during World War II. The improvements to refinery facilities and the petroleum transportation remained after World War II and advances in science and technology continued. Finally, commercial use of aviation gasoline continued during the Korean War.

Appendices 1.1 and 1.2

Necessity Certificates

Baytown

Application	Property/Equipment	Date of Necessity Certificate	\$ Amount of Certificate	Application Bates #
WD-N-6	construction of special facilities - oil piping, pumps, and breakdown tanks to transport oil from Humble plant to gov't owned plant and back	1940 11 19	\$729,500.31	US-BT000516 - 531
WD-N-6419	naphtha fractioning unit, 500 KW turbo-generator, expansion to alkylation plant, steam generating unit all at Baytown refinery; and Alkylation plant at Ingleside refinery	1942 01 27	\$5,600,000.00	US-BT000468 - 477
WD-N-30821	alterations to Vis-Breaker unit and to refinery equipment - facilities for preparation and segregation and tank car loading of hydro formed xylenes	1944 05 22	\$121,800.00	US-BT000371 - 90
WD-N-30822	construction of reactor, lines and connections, catalyst charge etc; facilities for increasing production of Isobutane	1944 04 04	\$78,490.00	US-BT000391 - 432
NC-1503	pump lines and connections at refinery; facilities for delivery of heating oil, kerosene, 80-octane all purpose gasoline, and 100 octane avgas to emergency pipe line.	unknown		US-BT000316 - 333
NC-1774	timber unloading rack, 4 600-barrel storage drums, pumping eqpt. & piping; facilities to receive, store, and blend C-S blending agent with avgas	unknown		US-BT000258 - 283
NC-1502	processing of certain stocks to produce hydro formed nitration grade xylenes	1944 02 12	\$32,600.00	US-BT000304 - 315
NC-1511	facilities for receiving co-polymer and shipping hydrogenated co-polymer	unknown		US-BT000352 - 370

NC-1783	storing and shipment of isobutane concentrate	1944 02 19	\$122,000.00	US-BT000284 - 303
NC-3478	pipe lines for oil and water	1944 02 25	\$65,000.00	US-BT000478 - 496
NC-8226	auxiliary eqpt. Third reactor.	1945 02 22	\$30,000.00	US-BT000222 - 235
NC-8227	addition to isomerization plant	1945 02 22	\$35,000.00	US-BT000236 - 257
NC-8612	eqpt to supply recirculated fresh water to refinery	1945 03 12	\$320,000	US-BT000497 - 506
WD-N-7462	new catalytic cracking unit, gas compression plant, light ends recovery unit, cooling tower & water distributing system, interconnecting lines, tanks, sewers, electric service lines, steam lines, between processing units, and defense plant and Baytown refinery	1942 05 09	\$8,437,582.23	US-BT000511
NC-9390	facilities for thermal after-treating of heavy catalytic naphtha	unknown		US-BT000507 - 515
unknown number	facilities to charge cracked naphtha Baytown Ordnance Works	unknown		US-BT000511
		TOTAL	\$15,571,972.54	

Baton Rouge

Application	Property/Equipment	Date of Necessity Certificate	\$ Amount of Certificate	Application Bates #
WD-N-3422	manufacture of chemical raw materials and synthetic rubber	1942 04 30 (see notes)	\$12,174,430.00 (see notes)	US-BR001105, US-BR001108
WD-N-6410	facilities to increase the production of 100 O.N. aviation gasoline	1942 02 25	\$27,538,000 (see notes)	US-BR001112- 29
WD-N-8792	gas handling facilities	1942 06 19	\$389,000.00	US-BR001130- 38
WD-N-27023	alkylation plant	1943 10 21	\$1,262,653.67	US-BR001155- 65
WD-N-14132	offsite facilities for Plancors 152, 572, and 1065	1943 02 24	\$776,500.00	US-BR001139- 54
WD-N-26295	alcohol plant	as of an application dated 1/12/1944, this application had not been accepted.		US-BR001167- 79
NC-1341	isomerization facilities	as of an application dated 1/12/1944, this application had not been accepted.		US-BR001063- 78
NC-1526	ethylene facilities	1944 02 24	\$447,213.50	US-BR001079- 1104
		Total	\$42,587,797.17	

Appendices 2.1 and 2.2

Defense Plant Corporation Contracts

Baytown: Defense Plant Corporation "Plancors"

Number	Date	Amount	Bates Range
1909 - Original Lease	7/21/1943	\$2,750,000.00	MAA_EM-001881-901
1909 - Amendment 1	6/1/1944	\$1,470,000.00	MAA_EM-001923-32
1909 - Amendment 2	1/23/1945	\$211,000.00	MAA_EM-001613-17
1909 - Amendment 3	8/13/1945	\$61,550.00	MAA_EM-001610-12
Total		\$4,492,550.00	
485 - Original Lease	3/23/1942	\$16,700,000.00	BAYHIS-00005756-64
485 - Amendment 1	11/1/1943	\$2,287,000.00	BAYHIS-00005753-55
Total		\$18,987,000.00	
877 - Original Lease	11/20/1942	\$5,500,000.00	BAYHIS-00000079-86
877 - Amendment 1	5/4/1943	\$125,000.00	BAYHIS-00000079-86
877 - Amendment 2	7/1/1943	\$1,250,000.00	BAYHIS-00000079-86
877 - Amendment 2	11/11/1973	\$900,000.00	BAYHIS-00000101-04
Total		\$7,775,000.00	
1082 - Original Lease	5/18/1942	\$16,854,700.00	US-BT008057-68
1082 - Amendment 1	7/24/1942	\$4,450,000.00	BAYHIS-00005888-91
1082 - Amendment 2	4/17/1944	\$3,347,851.00	BAYHIS-00005879-87
1082 - Amendment 3	6/13/1944	\$305,000.00	BAYHIS-00005875-78
1082 - Amendment 4	10/14/1944	\$492,450.00	BAYHIS-00005873-4
1082 - Amendment 5	2/19/1945	\$545,000.00	BAYHIS-00005871-2
Total		\$25,995,001.00	
All DPC Money		\$57,249,551.00	

Baton Rouge: Defense Plant Corporation "Plancors"

Number	Date	Amount	Bates Number
152 - Original Lease	8/23/1941	\$7,464,000.00	BRHIS-00001165-73
152 - Amendment 1	2/21/1942	\$1,176,000.00	BRHIS-00001097-104
152 - Amendment 2	4/30/1943	\$939,325.00	BRHIS-00001101-04
	Total	\$9,579,325.00	
572 - Original Lease	4/20/1942	\$29,000,000.00	BRHIS-00015858-68
572 - Amendment 1	2/3/1943	-\$7,802,600.00	BRHIS-00015950-53
572 - Amendment 2	8/11/1943	\$602,600.00	BRHIS-00015973-76
572 - Amendment 3	12/6/1943	\$2,720,000.00	BRHIS-00016038-40
572 - Amendment 4	5/11/1944	\$600,000.00	BRHIS-00016041-43
572 - Amendment 5	3/17/1945	\$1,373,501.00	BRHIS-00016046-48
	Total	\$26,493,501.00	
1065 - Original Lease	6/23/1942	\$1,421,150.00	BRHIS-00003016-28
1065 - Amendment 1	6/1/1943	\$541,172.77	BRHIS-00002917-19
1065 - Amendment 2	9/24/1943	\$620,870.54	BRHIS-00002920-23
1065 - Amendment 3	11/1/1943	\$241,061.00	BRHIS-00002884-99
1065 - Amendment 4	5/9/1945	\$300,000.00	BRHIS-00002870-83
1065 - Amendment 5	8/20/1945	\$233,000.00	BRHIS-00002867-69
	Total	\$3,357,254.31	
1355 - Original Lease	2/18/1943	\$1,610,000.00	BRHIS-00015355-67
1355 - Amendment 1	1/6/1944	\$127,987.00	BRHIS-00015445-52
1355 - Amendment 2	6/8/1944	\$75,000.00	BRHIS-00015453-55
1355 - Amendment 3	3/5/1948	\$0.00	US-BR004447-48
	Total	\$1,812,987.00	
1384 - Prospectus	12/31/1943	\$6,341.60	US-BR000938
	Total	\$6,341.60	
1526 - Original Lease	2/20/1943	\$500,000.00	BRHIS-00004972-82
1526 - Amendment 1	6/9/1943	\$155,000.00	BRHIS-00004983-84
1526 - Amendment 2	9/30/1943	\$28,000.00	BRHIS-00004985-88
	Total	\$683,000.00	
1868 Original Lease	11/23/1943	\$4,000,000.00	BRHIS-00000058-77
	Total	\$4,000,000.00	
	All DPC Money	\$36,353,083.91	

Appendices 3.1 and 3.2

District 3 PAW Reports September 1942-June 1945*

Baytown

Products	Production B/D Sept. 1942	Production B/D Oct. 1942	Production B/D Nov. 1942	Production B/D Dec. 1942
100 O.N.	10,744	14,593	12,598	18,885
91 O.N.	3,371	425	5,698	723
Comp's 91 & 100 O.N.	4,469	974	-2,487	-14
Other Aviation Gasoline	3,053	3,237	1,882	2,237
All Other Gasoline	0	0	0	0
Acetone & Butadiene	0	0	0	0
Solvent Naptha	0	0	0	0
Naptha for Toluene	-9,980	-9,998	-12,830	0
Toluene	3,926	3,497	4,658	4,377
Kerosene, Tractor Fuel, etc.	0	0	0	0
Kerosene	0		0	0
Heating Oils, Other Gases, & Diesels	0	0	0	0
Heating Oils, Tractor Fuel, Other Gases	0	0	0	0
Diesel Oils	0	0	0	0
Fuel Oil Navy Special	11,242	8,984	7,908	0
Residual Fuel Oil	19,140	20,120	20,383	0
Aviation Lubes	1,052	1,756	1,329	834
Other Finished Lubes	0	0	0	0
Unfinished Lubes	0	0	0	0
Coke	0	0	0	125
Asphalt	0	0	0	1,723
Other Products	0	0	0	0
Loss	0	0	0	0
Loss & Gas	0	0	0	0
Total Production	47,017	43,588	39,139	28,890
Sum				
Crude Charge to Stills	138,115	137,153	131,588	138,959
Other Raw Materials	0	0	0	0
Natural Gasoline & Cond.	0	0	0	12,512
Total Charge to Stills	0	0	0	151,471
Bates Number	MAA_EM0003153 -55	MAA_EM0003203 -05	MAA_EM0003210 -12	MAA_EM0003222 25

* A report for December 1943 is not extant.

Products	Production B/D Jan. 1943	Production B/D Feb. 1943	Production B/D March 1943	Production B/D April 1943
100 O.N.	10,895	16,960	17,714	26,428
91 O.N.	3,541	-145	-1,448	-24
Comp's 91 & 100 O.N.	5,318	3,011	3,697	-2,104
Other Aviation Gasoline	1,121	3,203	1,840	734
All Other Gasoline	38,198	26,546	28,886	32,669
Acetone & Butadiene	0	0	0	0
Solvent Naptha	1,771	-1,201	1,017	846
Naptha for Toluene	-7,494	-6,080	-11,635	-4,179
Toluene	4,102	4,199	4,245	4,114
Kerosene, Tractor Fuel, etc.	0	0	0	0
Kerosene	12,043	12,622	9,955	8,400
Heating Oils, Other Gases, & Diesels	0	0	0	0
Heating Oils, Tractor Fuel, Other Gases	36,393	22,181	10,877	26,784
Diesel Oils	1,348	11,711	21,659	11,658
Fuel Oil Navy Special	9,939	9,508	3,909	12,139
Residual Fuel Oil	22,486	24,515	29,803	23,444
Aviation Lubes	1,853	1,603	439	1,425
Other Finished Lubes	3,760	3,254	5,132	4,571
Unfinished Lubes	-1,010	-201	-107	195
Coke	72	163	139	155
Asphalt	792	530	666	436
Other Products	-12,975	-1,106	-2,057	-1,326
Loss	0	0	0	0
Loss & Gas	15,021	16,978	15,857	16,887
Total Production	147,174	148,251	140,588	163,252
Sum				
Crude Charge to Stillls	143,767	144,181	136,574	140,978
Other Raw Materials	0	0	0	22,274
Natural Gasoline & Cond.	9,729	0	10,474	0
Total Charge to Stillls	153,496	0	147,048	163,252
Bates Number	MAA_EM0003233 35	MAA_EM0002784 85	MAA_EM000276 4-66	MAA_EM0002775- 76

Products	Production B/D May 1943	Production B/D June 1943	Production B/D July 1943	Production B/D Aug. 1943
100 O.N.	21,145	19,023	10,296	16,089
91 O.N.	-138	61	5	-244
Comp's 91 & 100 O.N.	-2,385	2,564	9,113	6,459
Other Aviation Gasoline	2,359	2,292	397	10,370
All Other Gasoline	26,517	30,415	29,133	29,252
Acetone & Butadiene	0	0	0	238
Solvent Naptha	991	1,613	613	1,343
Naptha for Toluene	-1,711	3,710	2,735	-1,137
Toluene	4,461	4,201	3,899	4,521
Kerosene, Tractor Fuel, etc.	0	0	0	0
Kerosene	10,787	8,544	8,345	6,209
Heating Oils, Other Gases, & Diesels	0	0	0	0
Heating Oils, Tractor Fuel, Other Gases	25,343	19,186	22,411	24,326
Diesel Oils	14,303	13,411	9,012	20,816
Fuel Oil Navy Special	15,439	12,584	17,537	11,473
Residual Fuel Oil	16,421	24,687	16,666	27,129
Aviation Lubes	837	2,916	1,299	468
Other Finished Lubes	3,219	2,436	3,331	5,519
Unfinished Lubes	3,214	-933	-1,052	272
Coke	141	118	93	119
Asphalt	818	811	617	1,420
Other Products	7,580	8,082	-3,315	5,494
Loss	0	0	0	0
Loss & Gas	16,546	15,549	17,375	17,607
Total Production	165,887	171,270	148,510	187,743
Sum				
Crude Charge to Stills	147,473	148,665	126,467	161,626
Other Raw Materials	18,414	22,483	22,043	26,117
Natural Gasoline & Cond.	0	0	0	0
Total Charge to Stills	165,887	171,148	148,510	187,743
Bates Number	MAA_EM0002750- 51	MAA_EM0002732- 33	MAA_EM000272 0-21	MAA_EM0002469- 70

Products	Production B/D Sept. 1943	Production B/D Oct. 1943	Production B/D Nov. 1943	Production B/D Jan. 1944
100 O.N.	22,758	22,752	22,010	22,193
91 O.N.	-771	-827	0	0
Comp's 91 & 100 O.N.	2,140	4,886	4,740	2,778
Other Aviation Gasoline	15,764	10,392	7,511	10,545
All Other Gasoline	27,678	31,550	35,404	30,814
Acetone & Butadiene	330	520	582	746
Solvent Naptha	1,138	1,117	1,833	2,510
Naptha for Toluene	-110	-315	-447	-8,620
Toluene	4,530	4,507	3,734	3,850
Kerosene, Tractor Fuel, etc.	0	0	0	0
Kerosene	8,990	9,445	8,815	11,689
Heating Oils, Other Gases, & Diesels	0	0	0	0
Heating Oils, Tractor Fuel, Other Gases	35,603	32,399	48,302	24,506
Diesel Oils	14,097	12,411	-2,437	14,896
Fuel Oil Navy Special	14,147	5,291	11,049	4,215
Residual Fuel Oil	31,248	45,396	37,677	40,184
Aviation Lubes	411	1,153	1,191	805
Other Finished Lubes	5,764	-2,310	6,102	3,794
Unfinished Lubes	537	5,875	-932	743
Coke	120	130	0	61
Asphalt	767	220	451	823
Other Products	4,267	7,411	3,168	3,244
Loss	0	0	0	0
Loss & Gas	16,788	18,384	18,041	16,227
Total Production	206,196	210,387	206,794	186,003
Sum				
Crude Charge to Stills	181,297	186,141	183,240	173,407
Other Raw Materials	24,899	24,246	23,554	12,056
Natural Gasoline & Cond.	0	0	0	0
Total Charge to Stills	206,196	210,387	206,794	185,463
Bates Number	MAA_EM0002454- 55	MAA_EM0002440- 41	MAA_EM000248 3-84	MAA_EM0002499- 500

Products	Production B/D Feb. 1944	Production B/D March 1944	Production B/D April 1944	Production B/D May 1944
100 O.N.	22,373	20,681	30,491	28,057
91 O.N.	0	0	0	0
Comp's 91 & 100 O.N.	5,691	6,361	5,356	5,094
Other Aviation Gasoline	10,352	8,616	10,006	6,715
All Other Gasoline	34,836	32,032	28,756	28,424
Acetone & Butadiene	703	788	811	888
Solvent Naptha	1,561	1,494	815	1,023
Naptha for Toluene	-9,759	-9,893	-4,949	-6,869
Toluene	4,509	4,407	4,867	3,497
Kerosene, Tractor Fuel, etc.	0	0	0	0
Kerosene	8,800	9,333	7,106	10,190
Heating Oils, Other Gases, & Diesels	0	0	0	0
Heating Oils, Tractor Fuel, Other Gases	23,069	16,290	34,776	29,855
Diesel Oils	17,824	20,598	19,276	20,058
Fuel Oil Navy Special	11,442	11,693	18,920	21,367
Residual Fuel Oil	39,501	29,059	24,247	28,440
Aviation Lubes	634	-624	483	628
Other Finished Lubes	7,049	7,444	7,587	5,537
Unfinished Lubes	-3,527	-1,566	292	3,200
Coke	97	92	132	112
Asphalt	203	606	670	418
Other Products	3,149	12,123	-3,060	675
Loss	0	0	0	0
Loss & Gas	17,249	17,159	18,071	20,534
Total Production	195,756	186,693	204,653	207,843
Sum				
Crude Charge to Stills	182,236	174,743	193,387	197,486
Other Raw Materials	13,520	11,950	11,266	10,357
Natural Gasoline & Cond.	0	0	0	0
Total Charge to Stills	195,756	186,693	204,653	207,843
Bates Number	MAA_EM0002706- 07	MAA_EM0002691- 92	MAA_EM000267 6-77	MAA_EM0002664- 65

Products	Production B/D June 1944	Production B/D July 1944	Production B/D Aug. 1944	Production B/D Sept. 1944
100 O.N.	28,340	30,157	26,198	35,805
91 O.N.	0	-3	0	0
Comp's 91 & 100 O.N.	4,867	4,046	7,468	5,715
Other Aviation Gasoline	14,576	9,529	10,325	9,854
All Other Gasoline	24,374	24,070	27,570	29,841
Acetone & Butadiene	838	517	531	585
Solvent Naptha	537	798	1,391	1,190
Naptha for Toluene	-10,841	-4,710	-7,224	-8,896
Toluene	4,713	4,644	4,805	4,588
Kerosene, Tractor Fuel, etc.	0	0	0	0
Kerosene	8,689	11,283	9,753	8,648
Heating Oils, Other Gases, & Diesels	0	0	0	0
Heating Oils, Tractor Fuel, Other Gases	18,821	23,020	29,839	34,562
Diesel Oils	19,601	18,156	18,526	13,244
Fuel Oil Navy Special	24,865	20,126	8,579	6,695
Residual Fuel Oil	24,243	26,863	34,202	37,587
Aviation Lubes	133	587	814	408
Other Finished Lubes	7,593	4,619	9,016	6,513
Unfinished Lubes	-1,625	2,275	4,435	5,016
Coke	151	111	145	108
Asphalt	1,104	1,406	946	1,099
Other Products	2,919	5,986	4,043	-2,988
Loss	0	0	0	0
Loss & Gas	19,395	17,793	16,040	15,345
Total Production	193,293	201,273	207,402	204,919
Sum				
Crude Charge to Stills	183,215	190,741	197,412	194,907
Other Raw Materials	10,078	10,532	9,990	10,012
Natural Gasoline & Cond.	0	0	0	0
Total Charge to Stills	193,293	201,273	207,402	204,919
Bates Number	MAA_EM0002630- 31	MAA_EM0002642- 43	MAA_EM000265 3-54	MAA_EM0002608- 09

Products	Production B/D Oct. 1944	Production B/D Nov. 1944	Production B/D Dec. 1944	Production B/D Jan. 1945
100 O.N.	32,212	25,689	27,903	29,258
91 O.N.	0	0	0	0
Comp's 91 & 100 O.N.	7,221	8,859	10,962	24,597
Other Aviation Gasoline	11,280	11,548	11,486	7,897
All Other Gasoline	27,779	28,287	24,117	28,623
Acetone & Butadiene	940	875	1,017	1,189
Solvent Naptha	1,737	2,099	1,949	1,948
Naptha for Toluene	-9,329	-9,316	-1,968	-13,545
Toluene	4,883	4,946	4,147	4,782
Kerosene, Tractor Fuel, etc.	0	0	0	0
Kerosene	9,469	11,549	10,546	9,595
Heating Oils, Other Gases, & Diesels	0	0	0	0
Heating Oils, Tractor Fuel, Other Gases	36,862	36,298	21,190	27,285
Diesel Oils	12,349	10,570	15,819	12,430
Fuel Oil Navy Special	16,980	18,492	16,545	14,867
Residual Fuel Oil	27,546	30,106	24,524	30,408
Aviation Lubes	960	183	216	187
Other Finished Lubes	7,911	8,512	7,215	4,424
Unfinished Lubes	777	1,396	1,258	2,053
Coke	142	0	65	134
Asphalt	647	404	628	547
Other Products	-6,998	-6,809	-5317	-2,439
Loss	0	0	0	0
Loss & Gas	14,658	14,897	14,376	18,419
Total Production	198,026	198,585	186,678	202,659
Sum				
Crude Charge to Stills	188,872	190,210	178,497	187,474
Other Raw Materials	9,154	8,411	8,181	15,185
Natural Gasoline & Cond.	0	0	0	0
Total Charge to Stills	198,026	198,621	186,678	202,659
Bates Number	MAA_EM0002619- 20*	MAA_EM0002596- 98**	MAA_EM000256 5-66	MAA_EM0002576- 77

*The document appears to show 7,779 for this statistic, but 7,779 would be too low for the 14.03% product yield given. Dividing the likely correct number of 27,779 by the total charge to stills yields the percentage given of 14.03%. We can be reasonably confident that 27,779 is the correct number.

**This number was cut off from the document. The percent product yield was calculated by summing the rest of the percent product yield numbers and subtracting the result from 100. The production number was then estimated by multiplying the estimated percent product yield (divided by 100) by the total charge to stills.

Products	Production B/D Feb. 1945	Production B/D March 1945	Production B/D April 1945
100 O.N.	29,871	31,920	33,012
91 O.N.	0	0	0
Comp's 91 & 100 O.N.	20,850	16,699	13,635
Other Aviation Gasoline	16,631	12,004	11,716
All Other Gasoline	27,092	30,771	31,986
Acetone & Butadiene	962	948	1,162
Solvent Naptha	1,644	578	1,418
Naptha for Toluene	-12,425	-7,298	-13,596
Toluene	4,814	5,163	4,856
Kerosene, Tractor Fuel, etc.	0	0	0
Kerosene	9,860	8,377	9,091
Heating Oils, Other Gases, & Diesels	0	0	0
Heating Oils, Tractor Fuel, Other Gases	32,016	34,018	23,680
Diesel Oils	15,239	10,989	17,975
Fuel Oil Navy Special	10,611	8,501	10,192
Residual Fuel Oil	30,515	33,911	33,374
Aviation Lubes	316	329	300
Other Finished Lubes	6,082	6,189	7,813
Unfinished Lubes	5,288	2,513	4,354
Coke	0	0	0
Asphalt	484	686	1,042
Other Products	-10,827	-9,980	-3,051
Loss	0	0	0
Loss & Gas	14,899	16,181	18,632
Total Production	203,922	202,499	207,591
Sum			
Crude Charge to Stills	188,834	186,304	191,146
Other Raw Materials	15,088	16,195	16,445
Natural Gasoline & Cond.	0	0	0
Total Charge to Stills	203,922	202,499	207,591
Bates Number	MAA_EM0002587-88	MAA_EM0002534-35	MAA_EM0002544-45

Products	Production B/D May 1945	Production B/D June 1945
100 O.N.	29,197	31,635
91 O.N.	0	0
Comp's 91 & 100 O.N.	15,953	10,824
Other Aviation Gasoline	12,977	9,606
All Other Gasoline	31,169	29,548
Acetone & Butadiene	917	1,068
Solvent Naptha	1,318	1,019
Naptha for Toluene	-15,769	-7,908
Toluene	4,400	4,873
Kerosene, Tractor Fuel, etc.	0	0
Kerosene	11,291	9,362
Heating Oils, Other Gases, & Diesels	0	0
Heating Oils, Tractor Fuel, Other Gases	19,747	28,495
Diesel Oils	26,536	22,206
Fuel Oil Navy Special	3,293	11,204
Residual Fuel Oil	39,625	29,826
Aviation Lubes	331	734
Other Finished Lubes	7,246	6,198
Unfinished Lubes	738	2,409
Coke	146	94
Asphalt	242	372
Other Products	-4,051	-6,079
Loss	0	0
Loss & Gas	15,617	15,688
Total Production	200,923	201,174
Sum		
Crude Charge to Stills	183,467	183,582
Other Raw Materials	1,454	541
Natural Gasoline & Cond.	16,002	17,051
Total Charge to Stills	200,923	201,174
Bates Number	MAA_EM0002554-55	MAA_EM0002523-24

Products	Production B/D Sept. 1942	Production B/D Oct. 1942	Production B/D Nov. 1942	Production B/D Dec. 1942
100 O.N.	8,688	13,051	12,847	7,692
91 O.N.	1,744	3,435	2,128	2,920
Comp's 91 & 100 O.N.	6,525	767	2,677	-4,278
Other Aviation Gasoline	729	689	1,221	1,044
All Other Gasoline	-			-
Acetone & Butadiene	79	44	49	45
Solvent Naptha	-	-	-	-
Kerosene, Tractor Fuel, etc.	-	-	-	-
Kerosene	-	-	-	-
Heating Oils, Other Gases, & Diesels	-	-	-	-
Heating Oils, Tractor Fuel, Other Gases	-	-	-	-
Diesel Oils	-	-	-	-
Fuel Oil Navy Special	-	-	-	-
Residual Fuel Oil	20,935	24,479	26,287	-
Aviation Lubes	3,171	2,890	2,049	3,998
Other Finished Lubes	-	-	-	-
Unfinished Lubes	-	-	-	-
Wax	-	-	-	-
Coke	-	-	-	483
Asphalt	-	-	-	5,862
Other Products	-	-	-	-
Loss	-	-	-	-
Loss & Gas	-	-	-	-
Total Production	41,871	45,355	47,258	17,766
Sum				
Crude Charge to Stills	110,659	111,165	112,002	112,290
Other Raw Materials	-	-	-	-
Crude & Cond.	-	-	-	-
Natural Gasoline & Cond.	-	-	-	736
Total Charge to Stills	-	-	-	113,026
Bates Number	MAA_EM00031 53-55	MAA_EM00032 03-05	MAA_EM00032 10-12	MAA_EM00032 22-25

Products	Production B/D Jan. 1943	Production B/D Feb. 1943	Production B/D March 1943	Production B/D April 1943
100 O.N.	13,203	13,092	11,409	12,475
91 O.N.	2,808	3,189	2,129	1,331
Comp's 91 & 100 O.N.	-9,438	-13,901	-6,720	10,527
Other Aviation Gasoline	3,520	1,423	1,383	1,031
All Other Gasoline	23,499	27,677	23,349	25,105
Acetone & Butadiene	64	102	551	620
Solvent Naptha	1,180	832	1,095	1,507
Kerosene, Tractor Fuel, etc.	-	-	-	-
Kerosene	8,332	9,160	12,657	13,995
Heating Oils, Other Gases, & Diesels	-	-	-	-
Heating Oils, Tractor Fuel, Other Gases	5,502	12,125	6,860	8,252
Diesel Oils	6,036	6,187	6,953	1,346
Fuel Oil Navy Special	-	4,716	-	203
Residual Fuel Oil	19,933	20,968	27,262	26,511
Aviation Lubes	2,770	3,637	2,330	1,999
Other Finished Lubes	2,162	1,387	1,896	1,998
Unfinished Lubes	-1,492	1,829	-1,162	848
Wax	957	932	920	827
Coke	279	13	492	492
Asphalt	3,703	3,494	4,115	3,671
Other Products	6,903	-7,476	-5,737	-2,072
Loss	-	-	-	-
Loss & Gas	6,533	9,500	8,674	12,695
Total Production	96,454	98,886	98,456	123,361
Sum				
Crude Charge to Stills	96,261	98,886	98,456	106,978
Other Raw Materials	-	-	-	16,383
Crude & Cond.	96,385	-	-	-
Natural Gasoline & Cond.	529	1,454	1,089	-
Total Charge to Stills	96,790	100,340	99,545	123,361
Bates Number	MAA_EM00032 33-35	MAA_EM- 002783-85	MAA_EM00027 64-66	MAA_EM00027 75-76

Products	Production B/D May 1943	Production B/D June 1943	Production B/D July 1943	Production B/D Aug. 1943
100 O.N.	17,167	17,627	10,120	16,021
91 O.N.	-33	286	423	1,561
Comp's 91 & 100 O.N.	7,042	3,695	10,696	6,498
Other Aviation Gasoline	1,467	1,364	1,915	11,518
All Other Gasoline	27,188	26,574	25,974	18,895
Acetone & Butadiene	272	223	313	699
Solvent Naptha	2,474	1,982	1,531	1,701
Kerosene, Tractor Fuel, etc.	-	-	-	-
Kerosene	13,490	10,913	11,584	15,350
Heating Oils, Other Gases, & Diesels	-	-	-	-
Heating Oils, Tractor Fuel, Other Gases	1,848	5,206	8,172	8,030
Diesel Oils	4,169	9,024	7,876	5,692
Fuel Oil Navy Special	643	108	8,651	8,329
Residual Fuel Oil	24,154	26,257	27,692	23,878
Aviation Lubes	1,489	647	563	1,366
Other Finished Lubes	2,947	4,665	5,005	4,132
Unfinished Lubes	-842	-202	-1,047	1,113
Wax	898	935	872	903
Coke	519	473	399	1,073
Asphalt	3,838	5,049	5,355	3,683
Other Products	6,454	3,026	5,870	-1,750
Loss	-	-	-	-
Loss & Gas	11,723	12,550	9,917	17,596
Total Production	126,907	130,402	141,881	146,288
Sum				
Crude Charge to Stills	112,418	117,118	125,270	127,851
Other Raw Materials	14,489	13,284	16,611	18,437
Crude & Cond.	-	-	-	-
Natural Gasoline & Cond.	-	-	-	-
Total Charge to Stills	126,907	130,402	141,881	146,288
Bates Number	MAA_EM00027 50-51	MAA_EM00027 32-33	MAA_EM00027 20-21	MAA_EM00024 69-70

Products	Production B/D Sept. 1943	Production B/D Oct. 1943	Production B/D Nov. 1943	Production B/D Jan. 1944
100 O.N.	10,617	18,109	16,251	18,259
91 O.N.	4,822	7,105	5,575	3,425
Comp's 91 & 100 O.N.	13,536	-684	7,134	4,811
Other Aviation Gasoline	11,516	2,061	1,636	227
All Other Gasoline	19,975	26,896	30,135	27,638
Acetone & Butadiene	98	215	281	132
Solvent Naptha	1,856	1,659	1,679	2,288
Kerosene, Tractor Fuel, etc.	-	-	-	-
Kerosene	18,683	13,352	12,879	16,164
Heating Oils, Other Gases, & Diesels	-	-	-	-
Heating Oils, Tractor Fuel, Other Gases	4,408	12,217	10,815	9,739
Diesel Oils	6,758	8,772	12,889	14,808
Fuel Oil Navy Special	9,276	3,846	6,327	7,395
Residual Fuel Oil	20,270	20,992	17,430	18,322
Aviation Lubes	528	587	159	368
Other Finished Lubes	5,268	6,337	6,026	5,232
Unfinished Lubes	2,173	-12	602	-1,992
Wax	947	1,051	1,003	1,156
Coke	1,241	1,205	1,939	1,883
Asphalt	3,260	3,639	3,222	2,359
Other Products	2,442	6,992	-5,160	-17,962
Loss	-	-	-	-
Loss & Gas	15,706	13,549	17,633	15,387
Total Production	153,380	147,888	148,455	129,639
Sum				
Crude Charge to Stills	126,715	117,652	119,391	118,000
Other Raw Materials	26,665	30,236	29,064	11,639
Crude & Cond.	-	-	-	-
Natural Gasoline & Cond.	-	-	-	-
Total Charge to Stills	153,380	147,888	148,455	129,639
Bates Number	MAA_EM00024 54-55	MAA_EM00024 40-41	MAA_EM00024 83-84	MAA_EM00024 99-500

Products	Production B/D Feb. 1944	Production B/D March 1944	Production B/D April 1944	Production B/D May 1944
100 O.N.	29,562	24,768	29,409	29,896
91 O.N.	3,377	2,916	2,532	1,782
Comp's 91 & 100 O.N.	1,059	2,580	2,598	-1,320
Other Aviation Gasoline	6,096	7,097	8,637	7,542
All Other Gasoline	29,199	25,206	28,974	21,537
Acetone & Butadiene	350	791	410	434
Solvent Naptha	2,178	1,965	2,882	2,059
Kerosene, Tractor Fuel, etc.	-	-	-	-
Kerosene	17,977	18,807	18,331	17,279
Heating Oils, Other Gases, & Diesels	-	-	-	-
Heating Oils, Tractor Fuel, Other Gases	8,273	7,837	11,025	9,724
Diesel Oils	10,490	5,684	-1,215	8,797
Fuel Oil Navy Special	5,939	7,765	10,504	5,284
Residual Fuel Oil	27,687	23,779	25,703	23,497
Aviation Lubes	153	38	87	56
Other Finished Lubes	6,282	6,283	6,591	6,651
Unfinished Lubes	-1,378	1,017	-281	-1,374
Wax	966	810	928	911
Coke	2	1,961	1,907	1,188
Asphalt	1,411	1,177	1,182	2,190
Other Products	-16,320	-12,655	-11,183	-7,758
Loss	-	-	-	-
Loss & Gas	15,789	18,922	4,947	18,248
Total Production	149,092	146,748	143,968	146,623
Sum				
Crude Charge to Stills	132,476	131,892	126,034	129,579
Other Raw Materials	16,616	14,856	17,934	17,144
Crude & Cond.	-	-	-	-
Natural Gasoline & Cond.	-	-	-	-
Total Charge to Stills	149,092	146,748	143,968	146,723
Bates Number	MAA_EM00027 06-07	MAA_EM00026 91-92	MAA_EM00026 76-77	MAA_EM00026 64-65

Products	Production B/D June 1944	Production B/D July 1944	Production B/D Aug. 1944	Production B/D Sept. 1944
100 O.N.	24,223	26,228	28,532	36,084
91 O.N.	3,002	1,134	1,092	594
Comp's 91 & 100 O.N.	2,615	6,103	5,004	1,655
Other Aviation Gasoline	3,712	8,783	4,490	4,703
All Other Gasoline	24,670	23,363	22,944	23,551
Acetone & Butadiene	890	251	780	2,796
Solvent Naptha	3,025	2,391	3,048	1,946
Kerosene, Tractor Fuel, etc.	-	-	-	-
Kerosene	16,923	15,703	18,506	19,976
Heating Oils, Other Gases, & Diesels	-	-	-	-
Heating Oils, Tractor Fuel, Other Gases	10,974	8,104	13,044	9,552
Diesel Oils	8,507	18,162	7,073	7,858
Fuel Oil Navy Special	5,015	8,703	4,103	10,813
Residual Fuel Oil	22,762	22,237	26,715	17,452
Aviation Lubes	153	135	266	609
Other Finished Lubes	4,860	6,393	5,246	4,221
Unfinished Lubes	2,135	413	755	253
Wax	698	835	891	847
Coke	1,791	1,664	2,190	2,195
Asphalt	2,864	1,678	2,353	2,231
Other Products	-18,684	-22,780	-24,424	-20,156
Loss	-	-	-	-
Loss & Gas	17,489	15,081	20,175	15,756
Total Production	137,624	144,581	142,783	142,936
Sum				
Crude Charge to Stills	126,040	131,275	130,875	130,960
Other Raw Materials	11,584	13,306	11,908	11,976
Crude & Cond.	-	-	-	-
Natural Gasoline & Cond.	-	-	-	-
Total Charge to Stills	137,624	144,581	142,783	142,936
Bates Number	MAA_EM00026 30-31	MAA_EM00026 42-43	MAA_EM00026 53-54	MAA_EM00026 08-09

Products	Production B/D Oct. 1944	Production B/D Nov. 1944	Production B/D Dec. 1944	Production B/D Jan. 1945
100 O.N.	29,435	29,009	18,585	27,791
91 O.N.	915	1,220	1,186	560
Comp's 91 & 100 O.N.	5,794	3,002	9,655	4,902
Other Aviation Gasoline	3,806	3,115	1,033	2,356
All Other Gasoline	22,239	26,600	33,092	28,888
Acetone & Butadiene	3,584	3,290	3,159	2,875
Solvent Naptha	3,227	2,587	2,630	2,103
Kerosene, Tractor Fuel, etc.	-	-	-	-
Kerosene	18,672	17,353	19,160	16,361
Heating Oils, Other Gases, & Diesels	-	-	-	-
Heating Oils, Tractor Fuel, Other Gases	12,489	9,098	8,062	12,297
Diesel Oils	10,652	7,987	9,441	11,976
Fuel Oil Navy Special	6,806	6,170	3,037	2,156
Residual Fuel Oil	21,417	23,874	25,447	23,288
Aviation Lubes	359	370	403	474
Other Finished Lubes	5,905	4,856	5,228	6,043
Unfinished Lubes	307	-46	-872	-1,550
Wax	1,012	925	872	705
Coke	2,097	1,883	2,068	1,552
Asphalt	2,602	2,327	2,856	3,024
Other Products	-22,514	-21,365	-21,280	-24,692
Loss	-	-	-	-
Loss & Gas	12,796	15,373	14,144	17,172
Total Production	141,600	137,628	137,906	138,281
Sum				
Crude Charge to Stills	131,685	127,081	126,777	127,553
Other Raw Materials	9,915	10,549	11,129	10,728
Crude & Cond.	-	-	-	-
Natural Gasoline & Cond.	-	-	-	-
Total Charge to Stills	141,600	137,630	137,906	138,281
Bates Number	MAA_EM00026 19-20	MAA_EM00025 96-98*	MAA_EM00025 65-66	MAA_EM00025 76-77

*This number was cut off from the document. The percent product yield was calculated by summing the rest of the percent product yield numbers and subtracting the result from 100. The production number was then estimated by multiplying the estimated percent product yield (divided by 100) by the total charge to stills.

Products	Production B/D Feb. 1945	Production B/D March 1945	Production B/D April 1945
100 O.N.	18,557	20,527	25,525
91 O.N.	1,156	926	1,437
Comp's 91 & 100 O.N.	11,238	1,763	5,266
Other Aviation Gasoline	414	1,316	1,277
All Other Gasoline	24,664	32,950	27,698
Acetone & Butadiene	3,126	3,433	3,465
Solvent Naptha	2,800	2,466	2,039
Kerosene, Tractor Fuel, etc.	-	-	-
Kerosene	16,786	23,923	19,501
Heating Oils, Other Gases, & Diesels	-	-	-
Heating Oils, Tractor Fuel, Other Gases	11,739	9,400	10,616
Diesel Oils	4,977	9,410	8,890
Fuel Oil Navy Special	517	796	-1,651
Residual Fuel Oil	32,126	29,798	32,900
Aviation Lubes	194	352	777
Other Finished Lubes	6,005	5,677	4,474
Unfinished Lubes	1,067	-638	-132
Wax	765	954	815
Coke	1,290	1,620	2,186
Asphalt	1,711	2,236	2,752
Other Products	-8,102	-14,419	-24,896
Loss	-	-	-
Loss & Gas	9,599	12,793	16,803
Total Production	140,629	145,283	139,742
Sum			
Crude Charge to Stills	127,168	135,943	130,169
Other Raw Materials	13,461	9,340	9,587
Crude & Cond.	-	-	-
Natural Gasoline & Cond.	-	-	-
Total Charge to Stills	140,629	145,283	139,756
Bates Number	MAA_EM0002587 -88	MAA_EM0002534-35	MAA_EM0002544-45

Products	Production B/D May 1945	Production B/D June 1945
100 O.N.	23,922	28,033
91 O.N.	1,212	1,101
Comp's 91 & 100 O.N.	9,350	-4,201
Other Aviation Gasoline	655	649
All Other Gasoline	24,340	26,383
Acetone & Butadiene	2,972	3,768
Solvent Naptha	2,517	3,048
Kerosene, Tractor Fuel, etc.	-	-
Kerosene	16,754	17,155
Heating Oils, Other Gases, & Diesels	-	-
Heating Oils, Tractor Fuel, Other Gases	14,088	16,027
Diesel Oils	6,127	7,525
Fuel Oil Navy Special	555	3,476
Residual Fuel Oil	26,351	23,955
Aviation Lubes	740	299
Other Finished Lubes	5,044	4,714
Unfinished Lubes	1,031	731
Wax	931	833
Coke	1,842	2,129
Asphalt	3,092	1,955
Other Products	-22,957	-16,426
Loss	-	-
Loss & Gas	14,313	15,168
Total Production	132,879	136,322
Sum		
Crude Charge to Stills	124,940	128,530
Other Raw Materials	990	3,773
Crude & Cond.	-	-
Natural Gasoline & Cond.	6,949	4,019
Total Charge to Stills	132,879	136,322
Bates Number	MAA_EM0002554-55	MAA_EM0002523-24

Exhibit 1

Resume of Jay L. Brigham, Ph.D.



JAY L. BRIGHAM, PH.D., PARTNER

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jay@morganangel.com • www.morganangel.com

EDUCATION

Ph.D., American History, The University of California, Riverside, CA, 1992
M.A., American History, The University of Maryland, College Park, MD, 1986
B.A., American History, Linfield College, McMinnville, OR, 1982

CAREER SUMMARY

After receiving his Ph.D. from the University of California, Riverside (UCR), Dr. Brigham taught at UCR; the University of Las Vegas; and Arizona State University. His areas of expertise include American Political History, the American West, and Environmental History. The University of Kansas published his book on the public power movement, *Empowering the West: Electrical Politics Before FDR*, in 1998. Dr. Brigham has authored several articles, written book reviews, and delivered presentations on the history of energy, the West, and the environment. He has authored expert witness reports that examined public policy issues during World War II, energy issues, U.S. Army Corps of Engineer dredging, and Takings cases for the U.S. Department of Justice and private law firms. Dr. Brigham has given expert testimony in numerous U.S. District Courts and the U.S. Court of Federal Claims.

PROFESSIONAL EXPERIENCE

Morgan, Angel & Associates, LLC, Washington, DC
Partner, 2009-present
Senior Research Associate, 2000-2008
Research Associate, 1997-1999

Arizona State University, Tempe, AZ
Senior Visiting Lecturer, 1996-1997

University of Nevada, Las Vegas, NV
Visiting Assistant Professor, 1995-1996

University of California, Riverside, CA
Visiting Assistant Professor, 1992-1995

EXPERT WITNESS EXPERIENCE

Retained by the United States Department of Justice in the following:

Lockheed Martin Corporation v. United States of America, 06-1438-RJL (D of DC.).

Exxon Mobil Corporation v. United States of America, 4:11-CV-1914 (D. LA.).

Exxon Mobil Corporation v. United States of America, H:10-2386 (S.D. TX., Houston Division).

Chickasaw Nation and Choctaw Nation v. Department of the Interior, NO. 05-CV-01524 (W.D. OK.).

Mediation involving National Fireworks (Cordova, Tennessee plant).

United States of America v. Washington State Department of Transportation, 3:08-CV-05722-FDB (W.D. WA.). Deposition and trial testimony was given in this case.

Texas Instruments Incorporated, f/k/a Metals and Controls Corp., M&C Nuclear, Inc. v United States of America, 09-701 (CFC).

AVX Corporation v. Horry Land Company, Inc., and United States of America, 4:07-CV-3299-TLW-TER (D. S.C.). Deposition and trial testimony was given in this case.

Appleton Papers, Inc. and NCR Corporation v. George Whiting Paper Company, et al., No. 08-CV-00016-WCG (Consolidated with Case No. 08-CV-0895) (E.D. WI.). Deposition testimony was given in this case.

Exxon Mobil Corporation v. United States of America, 09-165 and 09882 (Court of Federal Claims); and CV H-10-2386 (S.D. TX).

City of Fresno v. United States of America, et al., 1:06-CV-01559-OW-LJO (E.D. CA.). Deposition testimony was given in this case.

American International Specialty Lines Insurance Company v. United States of America, CV06-4686 AHM (RZx), (C.D. CA.). Deposition and trial testimony was given in this case.

Litgo New Jersey, Inc., et al. v. Mauriello, Case No. 06-2891 (AET) (TB) (D. N.J.).
Deposition and trial testimony was given in this case.

Seminole Nation of Oklahoma v. Salazar, et al., Case No. CIV-06-556-SPS (OK E.D.)
CV-935-L; and *Seminole Nation of Oklahoma v. United States*, Case No., 06-CV-935-L
(CFC).

Blue Tee Matter (meditation involving the former American Zinc plant in Dumas, TX.).

TDY Holdings, LLC and TDY Industries, Inc. v. The United States of America, 07-cv-
0787-JAH (POR), (S.D. CA.). Deposition testimony was given in this case.

Ute Tribe of Uintah and Ouray Tribes v. United States of America, 06-CV-00866 (CFC).

Raytheon Aircraft Company v. United States of America, 05-CV-2328, (D. KS.).
Deposition and trial testimony was given in this case.

Hudson RiverKeeper Fund Inc. v. Atlantic Richfield Co., 94-CV-2741 (WCC) (S.D.
N.Y.). Deposition testimony was given in this case.

Tar Creek Superfund Site, Ottawa County, OK, EPA ID OKD980629844.

Navajo Nation, 00-CV-5086 (CFC).

Ford Motor Company v. United States, 04-CV-72018 (E.D. MI.).

*Land Grantors in Henderson, Union, & Webster Counties, KY & Their Heirs (Taking
Realty)*, Congressional Reference No. 93-648X (CFC). Trial testimony was given in this
case.

Reynolds Metals Co. and Alcoa Inc. v. United States et al., Civil Action No. 03-1180
(W.D. PA.).

Confederated Tribes of the Warm Springs Reservation of Oregon v. United States, Case
No. 02-126L (CFC).

United States of America v. Horsehead Industries, Inc., et al., Civil Action No. 3: CV-98-
0654 (M.D. PA.).

United States of America v. Monsanto, Civil Action No. 99-63-DRH (S.D. IL.).

*The Shoshone and Arapahoe Tribes of the Wind River Indian Reservation v. United
States*, Dockets 458-79 and 459-79 (CFC).

Alcoa, Inc. v. United States, et al., Civil Action No. 96-1098 (W.D. PA.).

Mediation involving Old American Zinc Superfund Site, Fairmont, IL, EPA ID IL0000034355.

Mediation involving Exxon Mobil, Inc. (Sharon Steel Fairmont Coke Works).

Mediation involving Martin-Dennis (Chemical Land Holding).

Red Lake Band of Chippewa Indians, et al., v. United States, No. 189-C (CFC).

Retained by the law firm of Gordon, Thomas, Honeywell, Malanca, Peterson & Daheim in the case of *Skokomish Indian Tribe v. City of Tacoma, et al.*, Civil Action No. C99-5606 FDB (W.D. WA.).

EXPERT REPORTS AUTHORED AND EXPERT WITNESS TESTIMONY

A Report on the Army Corps of Engineers and City Waterway, Tacoma Harbor, Washington: 1900-1950, United States of America v. Washington State Department of Transportation, 3:08-cv-05722-RJB, (W.D. WA). Deposition testimony was given based on this report.

A Report on Hammer Army Air Field, 1940-1948, City of Fresno v. The United States of America, No. 1:06-CV-01559-OW-LJO, (C.D. CA.). Deposition testimony was given based on this report.

A Report on the Myrtle Beach Army Air Field, 1941-1955, AVX Corporation v. Horry Land Company, Inc. and The United States of America, C/A NO: 4:07-CV-3299-TLW-TER. (D.S.C. Florence Div). Deposition testimony was given based on this report.

A Rebuttal Report, American International Specialty Lines Insurance Company v. United States of America, CV06-4686 AHM (RZx), (C.D. CA.). Deposition and trial testimony was given based on this report.

A Rebuttal Report, TDY Holdings, LLC and TDY Industries, Inc. v. The United States of America, 07-cv-0787-JAH (POR), (S.D. CA). Deposition and trial testimony was given based on this report.

A Report on the Ryan Aeronautical Plant in San Diego, California: World War II through the 1950s, TDY Holdings, LLC and TDY Industries, Inc. v. The United States of America, 07-cv-0787-JAH (POR), (S.D. CA). Deposition and trial testimony was given based on this report.

A Report on the Whittaker-Bermite Company, American International Specialty Lines Insurance Company v. United States of America, CV06-4686 AHM (RZx), (C.D. CA.). Deposition and trial testimony was given based on this report.

A Report on the Environmental Protection Agency's Recycling Program and the Recycling of Carbonless Paper Appleton Papers, Inc. and NCR Corporation v. George Whiting Paper Company, et al., No. 08-CV-00016-WCG (Consolidated with Case No. 08-CV-0895) (E.D. WI.). Deposition testimony was given based on this report.

A Supplemental Report on Columbia Aircraft Products, Incorporated, Somerville, NJ: 1940-1947 Litgo New Jersey, Inc., et al. v. Mauriello, Case No. 06-2891 (AET) (TB) (D. N.J.). Deposition and trial testimony was given based on this report.

A Report on Columbia Aircraft Products, Incorporated, Somerville, NJ: 1940-1947, Litgo New Jersey, Inc., et al. v. Mauriello, Case No. 06-2891 (AET) (TB) (D. N.J.). Deposition and trial testimony was given based on this report.

A Report on the Anaconda Wire and Cable Plant During World War II at Hastings-on-Hudson, New York; Hudson RiverKeeper Fund, Inc. v. Atlantic Richfield Co., 94-CV-2741 (WCC) (S.D.N.Y.). Deposition testimony was given based on this report.

A Rebuttal Report on Potential Trichloroethylene Use at the Herington Army Air Field, Herington, Kansas; Raytheon Aircraft Company v. United States of America, 05-CV-2328, (D. KS.). Deposition and trial testimony was given based on this report.

A Report on the Government's Acquisition of Land for the Construction of Camp Breckinridge, Kentucky, Land Grantors in Henderson, Union, & Webster Counties, KY & Their Heirs (Taking Realty), (Court of Federal Claims, 2004). Trial testimony was given based on this report.

Tacoma's Public Power System, 1890s-1930s, Skokomish Indian Tribe v. City of Tacoma (W.D. WA., 2001).

PUBLICATIONS

BOOKS

Empowering the West, Electrical Politics Before FDR (University Press of Kansas, 1998).

This book was nominated for the George P. Marsh Award presented by the American Society for Environmental History, the Sharlin Memorial Award presented by the Social Science History Association, and the Best Book Award presented by Westerners International.

CHAPTERS IN BOOKS

"From Water to Power: The Changing Charge of the Bureau of Reclamation," *Reclamation, Managing Water in the West, The Bureau of Reclamation: History Essays from the Centennial Symposium*, Volume 2 (U.S. Department of the Interior, Bureau of Reclamation, 2008).

“Lighting Las Vegas: Electricity and the City of Glitz” in Mike Davis and Hal Rothman, eds., *The Grid Beneath the Glitter: Tales from the Real Las Vegas* (University of California Press, 2002).

ARTICLES

“Lighting the Reservation: The Impact of the Rural Electrification Administration on Native Lands,” *The Journal of the West* (2001).

“The Ace: Local Control,” *Public Power* 58 (2000).

“Hydro Power’s Legacy,” *Public Power* 58 (2000). This article was reprinted as “Governing Hydropower: The Story Behind the Law,” *Hydro Review* (2001).

“Public Power and the Electrical Modernization of America,” *Public Power* 57 (1999).

“Moving Out and Settling In: Residential Mobility, Homeowning, and the Public Enframing of Citizenship, 1921-1950,” with Ronald Tobey and Charles Wetherell, *American Historical Review* 95 (1990): 1395-1422.

ENCYCLOPEDIA ENTRIES

“Federal Power Act,” Steven L. Danver, ed., *The Encyclopedia of Politics in the American West* (Washington, DC: Mesa Verde Publishing/CQ Press, forthcoming).

“Public Utilities (Federal Policy),” Donald Critchlow and Philip VanderMeer, eds., *Oxford University Encyclopedia of American Political, Policy and Legal History* (New York: Oxford University Press, forthcoming).

BOOK REVIEWS

Char Miller, eds. *Cities and Nature in the American West*, (Reno and Las Vegas: University of Nevada Press, 2010), *Journal of the West*, 2012.

Zachary A. Smith and John C. Freemuth, eds. *Environmental Politics and Policy in the West*, Revised Edition (Boulder: University Press of Colorado, 2007), *Journal of the West*, 2009.

Gary D. Libecap, *Owens Valley Revisited, A Reassessment of the West’s First Great Water Transfer* (Palo Alto: Stanford University Press, 2007), *Journal of the West*, 2008.

John Trombold & Peter Donahue, eds. *Reading Portland: The City in Prose* (Portland: Oregon Historical Society Press; and Seattle University of Washington Press, 2006), *Journal of the West*, 2008.

Renée Corona Kolvet and Victoria Ford, *The Civilian Conservation Corps in Nevada: From Boys to Men* (Reno and Las Vegas: University of Nevada Press, 2006), *Journal of the West*, 2007.

William D. Layman, *River of Memory: The Everlasting Columbia* (Seattle: University of Washington Press; and Vancouver: University of British Columbia Press, 2006), *Journal of the West*, 2007.

Marjorie Weinberg, *The Real Rosebud, The Trump of a Lakota Woman* (Lincoln, NE: University of Nebraska Press, 2004), *Journal of the West*, 2005.

Frank H. Goodyear III, *Red Cloud, Photographs of a Lakota Chief* (Lincoln, NE: University of Nebraska Press, 2003), *Journal of the West*, 2005.

Daniel Tyler, *Silver Fox of the Rockies: Delphus E. Carpenter and Western Water Compacts* (Norman, OK: University of Oklahoma Press, 2003), *Register of the Kentucky Historical Society*, 2003.

Tom H. Hastings, *Ecology of War & Peace: Counting the Cost of Conflict* (Lanham, MD: University Press of America, 2001), *Peace & Change*, 2002.

J. William T. Youngs, *The Fair and The Falls: Spokane's Expo '74 and the Transforming of an American Environment* (Cheney, WA: Eastern Washington University Press, 1996), *Pacific Northwest Quarterly*, 2000.

Char Miller, ed., *American Forests: Nature, Culture, and Politics* (University Press of Kansas, 1997), H-ASEH, H-Net Reviews, 2000. URL: <http://www.h-net.msu.edu/reviews/showrev.cgi?path=10514954955461>.

James C. Williams, *Energy and the Making of Modern California* (University of Akron Press, 1997), H-ASEH, H-Net Reviews, 1998. URL: <http://www.h-net.msu.edu/reviews/showrev.cgi?path=22617900011147>.

Walt Crowley, *To Serve the Greatest Number, A History of Group Health Cooperative of Puget Sound* (Seattle, Group Health Cooperative of Puget Sound and University of Washington Press, 1996), *Oregon Historical Quarterly*, 1998.

REPORTS

Public Power and Democracy (American Public Power Association, 2000).

PRESENTATIONS

"The Changing Political Landscape of Electrical Generation, Transmission, and Distribution in the American West," panelist, The Electric West: A Roundtable Discussion held at the Western History Association Conference in Denver, CO, October 2009.

"Salmon and Hydropower: The Policy Debates over Hydroelectric Development on the Cowlitz River," paper delivered at the Western History Association Conference in Fort Worth, TX, October 2003.

“Homer Truett Bone: Hydro and Public Power Crusader,” paper delivered at the American Society of Environmental History Conference, Providence, RI, March 2003.

“From Water to Power: The Changing Charge of the Bureau of Reclamation,” paper delivered at the Bureau of Reclamation’s Centennial Conference, Las Vegas, NV, June 2002.

Panelist, “Public vs. Private: Who Should Own Utilities,” 13th Annual Envisioning California Conference, Center for California Studies at California State University, Sacramento, CA, October 2001.

“Energy Resources and the Development of Modern America,” paper delivered at the Woodrow Wilson National Symposium, “America: Transformation Toward the Modern, 1856-1924,” Staunton, VA, October 2000.

“Lighting the Reservation: The Impact of the Rural Electrification Administration on Native Lands,” paper delivered at the 1999 Western History Association Conference, Portland, OR, October 1999.

“A Brief History of the Public Power Movement,” delivered at the National Hydropower Conference, Washington, DC, March 1999.

“The Rhetoric of Power: The Political Debates Over Electricity in the West During the 1920s,” delivered at the Pacific Coast Branch of the American Historical Association Annual Meeting, San Diego, CA, August 1998.

“New Deal-Old Deal: ‘Old’ Representatives and Senators in the New Deal,” delivered at the American Society for Environmental History Meeting, Baltimore, MD, March 1997.

“Rural Political Culture and Electricity in the 1920s,” delivered at the Western Social Science Association Meeting, Reno, NV, April 1996.

Moderator, “Agriculture and the Environment in Late Twentieth Century America,” session at the Western Social Science Association Meeting, Reno, NV, April 1996.

“Technology and Culture: American Political Ideology and Images of Utopia in the 1920s,” delivered at the Popular Culture Association Meeting, Las Vegas, NV, March 1996.

“Electrifying The Future: The Promise of Electrical Energy in the 1920s,” delivered at the Far West Popular and American Culture Associations Meeting, Las Vegas, NV, February 1996.

Comment, "Using the 1940s PUMS: Problems and Potential," Brian Gratton, Rodney Ito, and Joseph Wycoff at the All-University of California Group in Economic History Conference, Riverside, CA, March 1995.

"House Voting Behavior and Local Politics," delivered at the Social Science History Association Meeting, Baltimore, MD, November 1993.

ACADEMIC EXPERIENCE

Courses taught include:

Twentieth Century American History (numerous courses)

American West

Twentieth Century U.S. and American West Undergraduate Writing Seminars

Quantitative Methods and Social Science History

U.S. Survey, 1607-1865 and 1865-Present

Slavery and the Old South

Vietnam War

American Indian Policy

PROFESSIONAL MEMBERSHIPS AND SUBSCRIPTIONS

American Society for Environmental History

Western History Association

Environmental History

Western Historical Quarterly

Pacific Historical Review

OTHER PROFESSIONAL ACTIVITY AND SERVICE

Manuscript reviewer for the University of Nebraska Press, 2007.

Guest on "Springboard" technology program, produced by KQED Television, San Francisco, August 2001. Discussed technology and the electrification of rural America.

Guest Lecturer, The George Washington University, Washington, DC 2000, 1997

Research Associate, Hal K. Rothman Associates, Historic Resource Study of Carlsbad Caverns and Guadalupe Mountains National Parks, National Park Service, 1996

Consultant, UNLV Dickinson Library, Undergraduate User Survey Project, 1996

Honors Thesis Advisor, University of California, Riverside, 1994-1995

History Day Judge, Riverside County, CA, Department of Education, 1993-1995

Exhibit 2

List of cases in which Deposition or Trial Testimony was Given

United States of America v. Washington State Department of Transportation, 3:08-CV-05722-FDB (W.D. WA.). Deposition and trial testimony was given in this case (2010 and 2011).

AVX Corporation v. Horry Land Company, Inc., and United States of America, 4:07-CV-3299-TLW-TER (D. S.C.). Deposition and trial testimony was given in this case (2010 and 2011).

Appleton Papers, Inc. and NCR Corporation v. George Whiting Paper Company, et al., No. 08-CV-00016-WCG (Consolidated with Case No. 08-CV-0895) (E.D. WI.). Deposition testimony was given in this case (2009).

City of Fresno v. United States of America, et al., 1:06-CV-01559-OW-LJO (E.D. CA.). Deposition testimony was given in this case (2010).

American International Specialty Lines Insurance Company v. United States of America, CV06-4686 AHM (RZx), (C.D. CA.). Deposition and trial testimony was given in this case (2010).

Litgo New Jersey, Inc., et al. v. Mauriello, Case No. 06-2891 (AET) (TB) (D. N.J.). Deposition and trial testimony was given in this case (2009 and 2010).

TDY Holdings, LLC and TDY Industries, Inc. v. The United States of America, 07-cv-0787-JAH (POR), (S.D. CA.). Deposition testimony was given in this case (2009 and 2012).

Raytheon Aircraft Company v. United States of America, 05-CV-2328, (D. KS.). Deposition and trial testimony was given in this case (2007 and 2008).

Hudson RiverKeeper Fund Inc. v. Atlantic Richfield Co., 94-CV-2741 (WCC) (S.D. N.Y.). Deposition testimony was given in this case (2007).

Land Grantors in Henderson, Union, & Webster Counties, KY & Their Heirs (Taking Realty), Congressional Reference No. 93-648X (CFC). Trial testimony was given in this case (2004).

Exhibit 3

Documents Considered but not Cited

Beg. Bates No.	Beg. Bates No.	Beg. Bates No.	Beg. Bates No.	Beg. Bates No.
BAYC-00000973	BAYHIS-00002969	BAYHIS-00005849	BRC-00019184	MAA_EM-000002
BAYC-00000977	BAYHIS-00003232	BAYHIS-00005892	BRC-00021870	MAA_EM-000017
BAYC-00000979	BAYHIS-00003714	BAYHIS-00006132	BRHIS-00000011	MAA_EM-000019
BAYC-00000982	BAYHIS-00003733	BAYHIS-00006198	BRHIS-00000023	MAA_EM-000035
BAYC-00000983	BAYHIS-00003748	BAYHIS-00006256	BRHIS-00000050	MAA_EM-000102
BAYC-00000985	BAYHIS-00003767	BAYHIS-00006355	BRHIS-00000078	MAA_EM-000104
BAYC-00000987	BAYHIS-00003770	BAYHIS-00006655	BRHIS-00000483	MAA_EM-000112
BAYC-00000989	BAYHIS-00003772	BAYHIS-00007917	BRHIS-00000485	MAA_EM-000122
BAYC-00000991	BAYHIS-00003792	BAYHIS-00008233	BRHIS-00000598	MAA_EM-000254
BAYC-00001000	BAYHIS-00003802	BAYHIS-00008591	BRHIS-00001195	MAA_EM-000396
BAYHIS-00000043	BAYHIS-00004142	BAYHIS-00008655	BRHIS-00001199	MAA_EM-000421
BAYHIS-00000051	BAYHIS-00004146	BAYHIS-00009046	BRHIS-00001410	MAA_EM-000479
BAYHIS-00000053	BAYHIS-00004151	BAYHIS-00011685	BRHIS-00001800	MAA_EM-000486
BAYHIS-00000107	BAYHIS-00004153	BAYHIS-00011695	BRHIS-00001801	MAA_EM-000488
BAYHIS-00000111	BAYHIS-00004160	BAYHIS-00011757	BRHIS-00001817	MAA_EM-000501
BAYHIS-00000121	BAYHIS-00004210	BAYHIS-00011927	BRHIS-00001820	MAA_EM-000522
BAYHIS-00000171	BAYHIS-00004220	BAYHIS-00012037	BRHIS-00001826	MAA_EM-000525
BAYHIS-00000204	BAYHIS-00004237	BAYHIS-00012067	BRHIS-00001847	MAA_EM-000527
BAYHIS-00000234	BAYHIS-00004240	BAYHIS-00012068	BRHIS-00001893	MAA_EM-000529
BAYHIS-00000253	BAYHIS-00004255	BAYHIS-00012069	BRHIS-00002033	MAA_EM-000531
BAYHIS-00000340	BAYHIS-00004269	BAYHIS-00012222	BRHIS-00002905	MAA_EM-000534
BAYHIS-00000370	BAYHIS-00004271	BAYHIS-00012598	BRHIS-00002969	MAA_EM-000536
BAYHIS-00000426	BAYHIS-00004273	BAYHIS-00012602	BRHIS-00002978	MAA_EM-000546
BAYHIS-00000452	BAYHIS-00004288	BAYHIS-00012604	BRHIS-00003365	MAA_EM-000610
BAYHIS-00000657	BAYHIS-00004363	BAYHIS-00012661	BRHIS-00003506	MAA_EM-000611
BAYHIS-00000663	BAYHIS-00004534	BAYHIS-00012840	BRHIS-00003547	MAA_EM-000612
BAYHIS-00000671	BAYHIS-00004662	BAYHIS-00019605	BRHIS-00003557	MAA_EM-000615
BAYHIS-00000683	BAYHIS-00005706	BAYHIS-00019614	BRHIS-00003563	MAA_EM-000623
BAYHIS-00000788	BAYHIS-00005715	BAYHIS-00019869	BRHIS-00003572	MAA_EM-000624
BAYHIS-00000789	BAYHIS-00005717	BAYHIS-00025183	BRHIS-00005105	MAA_EM-000632
BAYHIS-00000790	BAYHIS-00005722	BAYHIS-00025744	BRHIS-00005435	MAA_EM-000644
BAYHIS-00000795	BAYHIS-00005724	BAYHIS-00025746	BRHIS-00006314	MAA_EM-000645
BAYHIS-00001313	BAYHIS-00005820	BRC-00000697	BRHIS-00006683	MAA_EM-000646
BAYHIS-00001352	BAYHIS-00005824	BRC-00000698	BRHIS-00006953	MAA_EM-000647
BAYHIS-00001534	BAYHIS-00005830	BRC-00000997	BRHIS-00006960	MAA_EM-000648
BAYHIS-00001538	BAYHIS-00005833	BRC-00001952	BRHIS-00006979	MAA_EM-000669
BAYHIS-00002129	BAYHIS-00005838	BRC-00003872	BRHIS-00006993	MAA_EM-000671
BAYHIS-00002224	BAYHIS-00005840	BRC-00007003	BRHIS-00014011	MAA_EM-000678

Beg. Bates No.	Beg. Bates No.	Beg. Bates No.	Beg. Bates No.	Beg. Bates No.
MAA_EM-000696	MAA_EM-001795	MAA_EM-002393	MAA_EM-003673	MIS-00014702
MAA_EM-000708	MAA_EM-001818	MAA_EM-002396	MAA_EM-003677	MIS-00014704
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MAA_EM-001585	MAA_EM-002316	MAA_EM-003000	MIS-00008133	MISC-00004758
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US-BR000106	US-BR000762	US-BR002834	US-BR003136	US-BR005671
US-BR000107	US-BR000776	US-BR002835	US-BR003527	US-BR005674
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US-BR000124	US-BR000809	US-BR002841	US-BR003608	US-BR005841
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US-BR006063	US-BT000670	US-BT002440	US-BT002806	US-BT006010
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US-BT000060	US-BT001582	US-BT002598	US-BT003717	US-BT006034
US-BT000061	US-BT001585	US-BT002602	US-BT004436	US-BT006035
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US-BT000150	US-BT001617	US-BT002643	US-BT004474	US-BT006084
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US-BT000209	US-BT002185	US-BT002671	US-BT004814	US-BT006109
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US-BT000246	US-BT002244	US-BT002676	US-BT004828	US-BT006114
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US-BT006284	US-BT008097	US-BT009334	US-BT012191	US-BT012977
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US-BT006396	US-BT008139	US-BT009370	US-BT012279	US-BT012997
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US-BT007681	US-BT008919	US-BT009888	US-BT012402	US-BT013072
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